Index to Contents, April 1946

(The Annual Index to Contents appears at the back of the December issue each year)

Accounting, Municipal
Unit Ledgers for Property Tax Accounting ... 91

Airports and Aviation
Lighted Float Defines Seaplane Landing Areas ... 13
Idlewild's "Aisle of Light" Landing Aid ... 13
Worcester Builds Its Own Airport Without Federal Aid ... 87

Building Codes
Building Codes, Building Costs, and Building Safety ... 93

Building Materials
Waterproofing That Works ... 14
Foundation Conditions Mapped ... 95
How Expansion and Contraction Joints Act ... 117

Business Machines and Systems
Unit Ledgers for Property Tax Accounting ... 91

City Manager Plan
City Manager Appointments ... 133

Civic Centers
A Caution Concerning Civic Centers ... 81

Conferences and Conventions
Conventions—When and Where ... 143

Construction
Construction Costs and Construction Volume ... 83
Building Codes, Building Costs, and Building Safety ... 93
An Engineer's Idea of a Banquet Menu ... 100

Education and Publicity
Ideas Know No Population Barriers ... 83
National Home Demonstration Week ... 98
Clearing House for Film ... 133
Public Administration Institute ... 133

Finance and Taxation
Highway and Street Maintenance Costs ... 11
Construction Costs and Construction Volume ... 83
New York Accepts Water Bids ... 89
Unit Ledgers for Property Tax Accounting ... 91
How a Small City Swimming Pool Might Be Financed ... 115
A Strictly Modern System Economically Planned ... 135
Municipal Bond Market ... 147

Fire Prevention and Control
New Technique Employing Water Spray to Put Out Flaming Gasoline ... 17

Health and Sanitation
To Prevent Famine in the War-Torn Lands ... 5
No Sneezing Here ... 116

Housing
Savannah Housing Authority Builds 3,945 New Dwellings in Eight Years ... 98
Available Soon—a Mass Production House ... 112

International Relations
To Prevent Famine in the War-Torn Lands ... 5

Laws and Legal Decisions
Municipal Law Notes ... 125

Lighting, Outdoor
No Blackout for Belmont's Town Hall ... 7
Seeing Saves Lives at Night ... 17
A Strictly Modern Lighting System Economically Planned ... 135
Syracuse Test Emphasizes Lighting Value ... 139

Memorials
The Park Arboretum as a Living Memorial ... 92

News and Illustrations
Items from Manufacturers and Others ... 149

Obituaries
Herbert Kimball Saxe ... 95

Officials and Employees
Ernest H. Harvey in Newton's Engineering Department 56 Years ... 7
Report from Her Honor, the Mayor of Hastings ... 83
An Evaluation of Employee Suggestion Systems ... 110
A New Charter for British Local Government ... 123

Parking Facilities
Parking Plan to Restore Baltimore's Downtown Values ... 127

Parks
The Park Arboretum as a Living Memorial ... 92
A Quarter of a Century of County Parks ... 103

Vol. LXI No. 4 — APRIL 1946

The American City

Issued Monthly by the
American City Magazine Corporation
470 Fourth Ave., New York 16, N. Y.

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Subscription, $3 per annum to any part of the world
Single copies, 50c
Entered as second-class matter, July 20, 1910, at the Post Office at New York, N. Y., under Act of March 3, 1879.
Printed in U. S. A.

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THE MUNICIPAL INDEX AND ATLAS used in connection with the current advertisements in THE AMERICAN CITY, places local officials in the most favorable position to obtain all types of available equipment and supplies from manufacturers who desire to serve municipal government departments. THE MUNICIPAL INDEX AND ATLAS (723 pages) is published annually by THE AMERICAN CITY MAGAZINE CORPORATION, 470 Fourth Avenue, New York 16, N. Y.

Planning and Zoning
Construction Costs and Volume ... 83
How a Municipal Realty Corporation Might Function ... 101
A Town Grows Up ... 106
Los Angeles Again Pioneers in Zoning ... 113
Behind Our Cities' Skyline ... 116
Parking Plan to Restore Baltimore's Downtown Values ... 127
Planning and Zoning Notes ... 141

Police
Two Hits in a Police Photography Contest ... 7

Public Relations
Information for Citizens of Birmingham ... 89
Prize-Winning Municipal Reports ... 111
Importance of Proper Telephone Usage ... 111
Community Relations for Manufacturers ... 133

Public Safety
Seeing Saves Lives at Night ... 17
New Technique Employing Water Spray to Put Out Flaming Gasoline ... 17
Signs, Signals, and Markings for St. Louis ... 129
Houston's Traffic Safety Program ... 131

Real Estate
How a Municipal Realty Corporation Might Function ... 101

Recreation
How a Small City Swimming Pool Might Be Financed ... 115

Refuse
Reading, Pa., Reclaims Garbage and Lowers Disposal Costs ... 96
Refuse Disposal for 40c Per Ton ... 108

Sewerage and Sewage Treatment
Waterproofing That Works ... 14
New Jersey to Supply Monthly List of New Sanitation Projects ... 14
How to Operate an Imhoff Tank ... 14
Making an Activated Sludge Plant Behave ... 84
A Town Grows Up ... 106
Listing of Sewerage Public Works ... 119

Street Construction and Maintenance
Some Pavement Loading Factors ... 11
Highway and Street Maintenance Costs ... 11
Dallas' Long Term Paving Program ... 11
Union's Semi-Permanent Street Design ... 99
Rainbow Hued Streets ... 115
How Expansion and Contraction Joints Act ... 117

Traffic and Transportation
Train Transportation to St. Louis ... 109
Let's Not Tax the Bicycle ... 127
Parking Plan to Restore Baltimore's Downtown Values ... 127
What Schenectady Will Do to Handle Traffic ... 129
New Public Transit for Brooklyn ... 129
Signs, Signals, and Markings for St. Louis ... 129
Houston's Traffic Safety Program ... 131
What Adequate Transportation Is ... 131
Who Heads Up Traffic in 78 Large Cities ... 131

Trees, Street
Cutting Up in the Streets ... 90

Water Supply and Purification
East Bay Pumping Station ... 9
Water Softening Project ... 9
How Settling Basins Work ... 9
Fort Wayne Extends Distribution System ... 9
How to Train New Operators ... 9
Chlorination Terminology ... 88
New York Accepts Water Bids ... 89
A Town Grows Up ... 106
A Water Supply's "Eel Filter" ... 107
Trends in Control Over Ground Water Use ... 110
Electronic Water Flocculation ... 116
Water and Electric Co. to Separate Interests ... 117

See pp. 21, 23, 24, 26, 28, 145, 147 for catalogs and publications on municipal and civic subjects

For Index to Advertisements see page 180

Long Distance is catching up too

More Long Distance calls go through as you hold the wire. Long delays are fewer.

The service is getting better, but we've still got a good way to go before we get back to pre-war service.

Once we catch up with that, we'll keep right on going and try to make the record even better.

BELL TELEPHONE SYSTEM

To Prevent Famine in the War-Torn Lands

Victory Gardens Can Help Immeasurably

LATEST reports from all parts of the world show that the food shortage in Europe and Asia has developed into an international crisis—far worse than was indicated three months ago. The situation calls for immediate, decisive action. Drastic measures are being taken by our government and by the United Nations, but every citizen of the United States must help if we are to prevent mass starvation in the rest of the world.

"The duty of the American family in this emergency," says the U. S. Department of Agriculture, is to:

1. *Cut food waste and eat less wheat products, fats, and oils—substituting foods that are plentiful.*

2. *Produce and preserve food at home—meeting farm goals, raising victory gardens, canning, and preserving.*

"Victory gardens this year will help immeasurably in making good our commitments to the rest of the world and assuring adequate supplies here at home. Last year's 18,400,000 home gardens turned out tremendous quantities of vegetables and fruits. We must do as well this year—better if possible.

"The time is late. The gardening campaign must get under way at once."

We Must Conserve More—Not Merely Produce More

UNDER the leadership of Chester C. Davis, organizing chairman of the Famine Emergency Committee, local committees are being set up in various cities to emphasize the city's part in the national food-conservation program. A return to the "wheatless" days of World War I, with federal enforcement, was proposed on March 24 by Paul Henkel, chairman of the restaurant division of the New York City Famine Emergency Committee, of which Mayor William O'Dwyer is honorary chairman.

Re-establishment of food rationing in this country is urged by Herbert H. Lehman, retiring director general of the United Nations Relief and Rehabilitation Administration. Leadership in procuring food for UNRRA now falls to Mr. Lehman's successor, New York's former Mayor, F. H. LaGuardia. Whether or not rationing is again imposed by federal law, every American mayor can help by urging conservation by voluntary or legal action in his own community.

Two kinds of picking: the one can alleviate the other

PHOTOS: LEFT, MARGARET OSBORNE; RIGHT AND COVER, FRENCH PRESS & INFORMATION SERVICE

President Truman: "The United States and other countries have moved food into war-torn countries in record amounts, but there has been a constantly widening gap between essential minimum needs and available supplies.

"The threat of starvation in many parts of the world and the urgent need for food from this country emphasize the importance of continued effort to add to our total food supply this year. A continuing program of gardening will be of great benefit to our people."

Secretary Anderson: "We shall do all that is humanly possible to keep faith with the starving people of other nations by making available as much of our food as we can possibly spare. How much we can spare is up to the people of America. Certain farm goals have been raised. Various controls have been imposed on the use and movement of critically needed foods. This will not be enough. Every family must bear a part of the burden by conserving food in every practical way and by raising a victory garden if possible."

UNRRA PHOTOGRAPH

As more gardens produce—

CHICAGO PARK DISTRICT PHOTO

fewer children will starve

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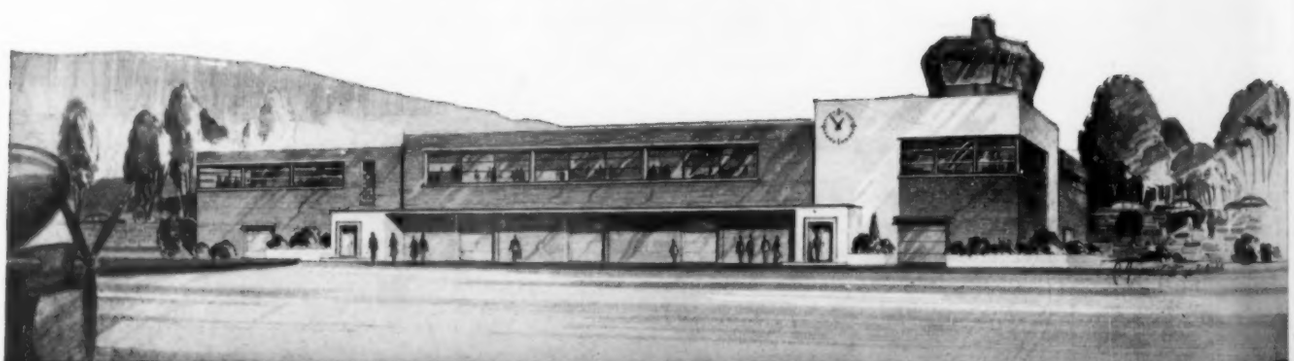
by LURIA



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Our Municipal Notebook

Two Hits in a Police Photography Contest

Traffic policing group winner

HERE are two of the $25 victory bond first-prize winners in the third nation-wide police photography contest of the Northwestern University Traffic Institute.

Paul Doherty of the Indiana State Police won the first prize in the traffic policing group with a night shot of an overturned coupé. A battered "End 30 Mile Speed Limit" sign helps to round out the picture story.

In the safety education group, Raymond Schaeffer of the Indiana department took first place with his "The Big One Wins," which shows a light car crushed by the wheels of a giant locomotive.

First in safety education group

First place in general policing photography went to William R. Gate of the California Highway Patrol for his picture "Blockade." The photo showed two state patrolmen blocking a highway.

Joel Tisdale of the Texas Department of Public Safety was first-place winner in the police identification group. His photo "Hit-Run," helped send the driver of a hit-run car to the penitentiary. It showed a fabric fragment that was removed from the car's radiator grill and matched with a hole in the victim's shirt.

In the dramatic or human interest group, Otha E. Bishop of Indiana won first place with "Silent Meditation," a picture of a broken bicycle and a boy's hat lying on the highway.

Contest judges were: William Kaepche, Chicago commercial photographer; Donald S. Berry, director of the traffic and transportation division, National Safety Council, Chicago; George C. Bowers, chief of police, Winnetka, Ill., and A. R. Forster, director of training, Northwestern University Traffic Institute.

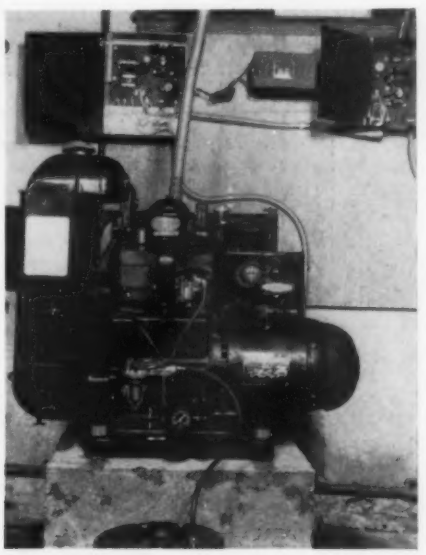
All photos submitted were taken by members of police departments in line of duty.

No Blackouts for Belmont's Town Hall

AT THE height of a recent storm the central power station serving Belmont, Mass., failed for nearly an hour, throwing most of the town into darkness, but the emergency exit and stairway lights in the town hall gleamed on.

To guard against forced blackouts resulting from winter snows, spring floods, and summer electric storms, Belmont had installed in the famous old Town Hall an auxiliary electric light and power plant.

This unit, a Fairbanks-Morse emergency generating set, has a capacity of 2,000 watts. It is 60-cycle, single phase, 115 volts, and is gasoline driven. It can be started by remote control.



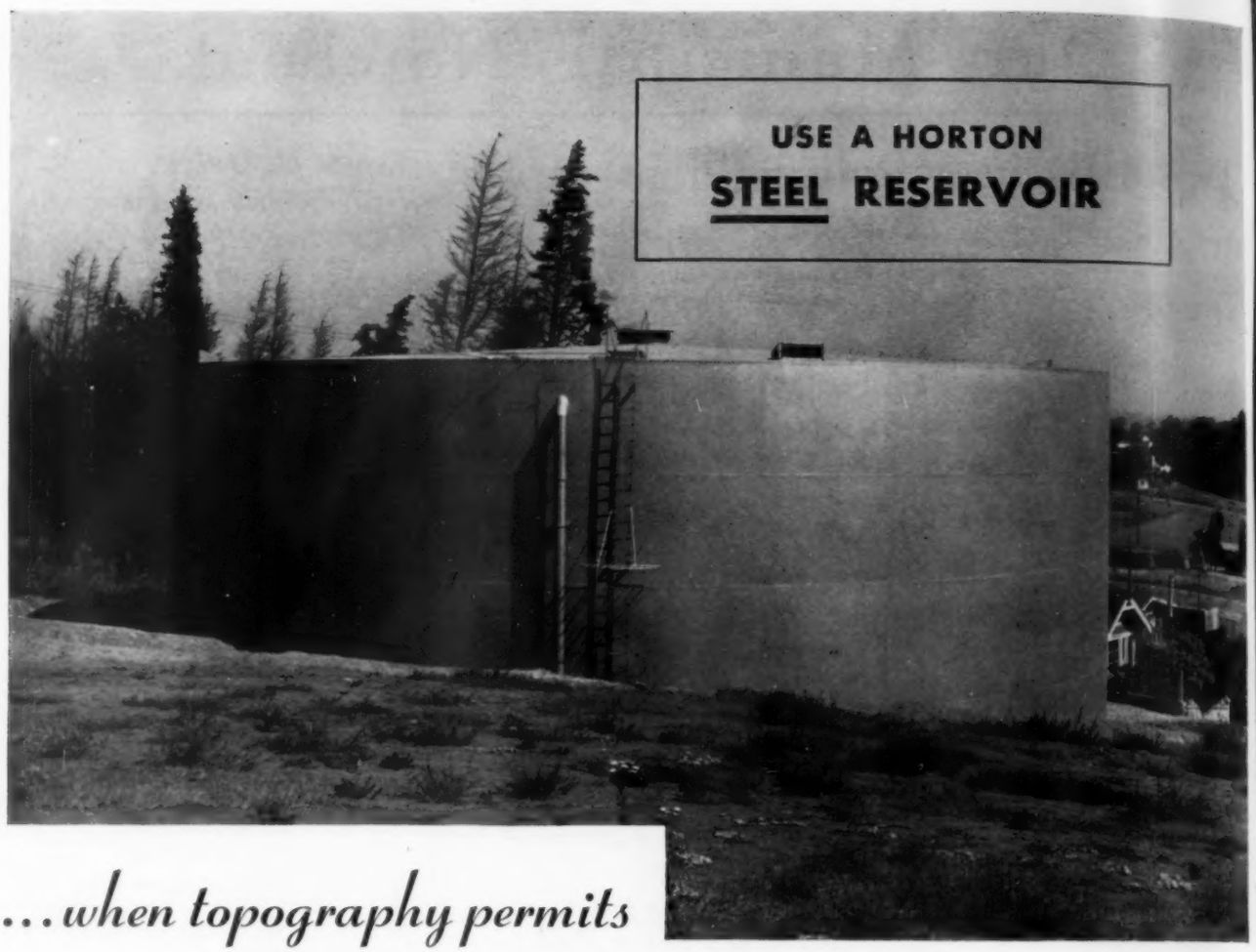
Belmont's town hall built in 1868 is a classic of its architectural era. A modern touch discernible only when the regular electric service is interrupted is a miniature electric generating plant that keeps the hall lights burning.

Ernest H. Harvey In Newton's Engineering Department for 56 Years

Ernest H. Harvey

IT IS with great pleasure that THE AMERICAN CITY compliments Ernest H. Harvey, retiring City Engineer of Newton, Mass., for 56 years of continuous service in the city engineering department. Mr. Harvey, now 71 years old, began his career at the age of 15, which suggests much night work learning to become an engineer.

Mr. Harvey will be succeeded by Willard S. Pratt who has been a member of the department for a mere 17 years.

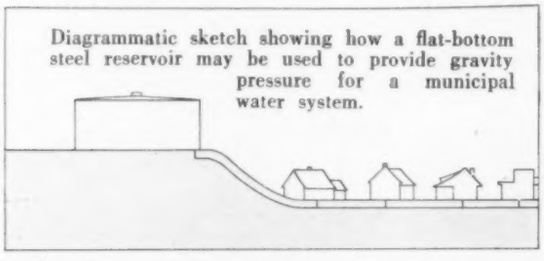


...when topography permits

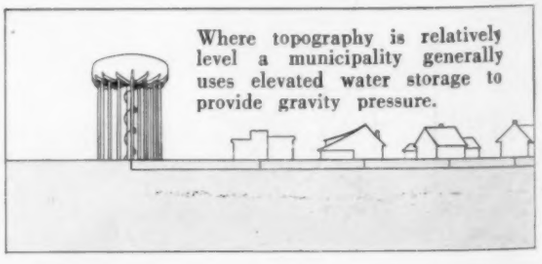
Elevated water storage tanks are generally used to provide gravity water pressure in municipal water supply systems. In some instances, however, steel reservoirs can also be used to maintain gravity pressure. At Hermosa Beach, Calif., the topography made this possible. The California Water Service Company installed the 1,000,000-gal. steel reservoir shown above on the side of a hill and it "rides" on the distribution system just like an elevated tank.

Welded *steel* reservoirs have several distinct advantages over other types of construction. Steel will not crack and develop leaks if there is uneven settlement. The welded joints are tight and stay water tight. Maintenance costs are low, for regular painting inside and outside will keep the steel in good condition. Steel reservoirs may be placed partially underground by covering the buried surfaces with a protective coating and arranging for proper drainage.

Under some circumstances engineers find it desirable to recommend a standpipe-type of reservoir. This type may be given special architectural treatment to harmonize with the surrounding territory.



Diagrammatic sketch showing how a flat-bottom steel reservoir may be used to provide gravity pressure for a municipal water system.



Where topography is relatively level a municipality generally uses elevated water storage to provide gravity pressure.

Engineers and city officials are invited to write our nearest office for quotations on flat-bottom steel reservoirs or elevated steel tanks when considering additions to or improvements in existing water supply systems.

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Cleveland 15 ..... 2236 Guildhall Bldg.
Los Angeles 14 ..... 1401 Wm. Fox Bldg.
Chicago 4 ..... 2127 McCormick Bldg.
San Francisco 5 ..... 1233-22 Battery St. Bldg.
Philadelphia 3 ..... 1616-1700 Walnut St. Bldg.
Atlanta 3 ..... 2114 Healey Bldg.
Washington 4 ..... 703 Atlantic Bldg.
Detroit 26 ..... 1501 Lafayette Bldg.

Plants in BIRMINGHAM, CHICAGO and GREENVILLE, PENNSYLVANIA

Water Supply and Treatment

Fort Wayne Extends Distribution System

Construction procedure for laying new mains at Fort Wayne. Shown in the picture from left to right are: Robert Christman, backfiller operator; Wilbert Ohneck, bottom man; Chas. Drew, Supt. of Water Construction Department; and Lewis Eckerle, Foreman.

FORT WAYNE, IND., installed in 1945 approximately 16,419 feet of new mains to enlarge its distribution system in various areas about the city where new housing required it. One area required 3,787 feet, another required 2,325 feet, while others needed various lengths.

The city has been laying 6-, 8-, and 12-inch Clow Super-de Levaud cast iron bell and spigot pipe with lead caulked joints. To lay this a Public Service ditcher with an International tractor high-lift backfiller is used.

So far in 1946 work orders have been written for approximately 11,760 feet more of new extensions. Of this amount 5,712 will use the mechanical joint of both 6- and 12-inch diameter. This will be the first installation of this type of joint in this city.

How to Train New Operators

CIVILIAN and military personnel post engineer activities were given a 21-day period to train water and sewerage operators for the various posts throughout the Third Service Command. The type of training that they found effective was explained by A. M. Tawney, Associate Sanitary Engineer, U. S. Corp of Engineers, Fort Meade, Md., in a paper delivered before the Four States Section of AWWA in Baltimore recently.

One of the most important steps was the elimination of classroom procedure in favor of practical "coaching" on the job. Instead of being subjected to oral or written examinations, the students kept a notebook that contained a diary of the work. This diary formed the basis on which the instructors judged the ability of the men and the thoroughness of their training. Copies of this were typed and forwarded to the post where each man was assigned so that his qualities could be appraised.

Flexibility also was emphasized. No man was allowed to specialize in any one phase of the treatment processes. The program aimed at and succeeded in achieving flexibility of operation and versatility of training.

East Bay District Completes New Pumping Station

ADDITIONAL WATER for the rapidly growing Oakland Metropolitan area in California seems assured by virtue of the new pumping plant the East Bay Municipal Utilities District has recently constructed. The plant increases the daily outflow of water of the Mokelumne aqueduct from 67 to 95 mgd. The main units in the plant consist of two 4,000-hp centrifugal pumps that can put 33,000 gpm through the 93-mile pipeline that leads from the Pardee Dam in Amador County to the Oakland area. (See "How Joint Action of Nine Cities Met Greatly Expanded Water Needs," THE AMERICAN CITY, September 1945, page 121).

The plant, semi-automatic in operation, was built with federal aid. The pumps are housed underground in a building 68 by 56 by 25 feet. The control building and motors are above ground. If trouble develops on the line or at the plant the pumps shut down automatically. The pumps may also be shut down by remote control by the operator at the Walnut Creek plant, 35 miles away.

At the beginning of the war the East Bay Municipal District was serving approximately 590,000 people. Water consumption averaged 46 mgd. In 1945 the total population served was estimated at 850,000 and the average consumption of water was 100 mgd, or a gain of 10 percent in the four-year period. The per capita consumption of water went from 78 gallons to 118.

To satisfy this enlarged demand the District found it necessary to increase the capacity of its five filter plants, to construct eight new plants, and to install some 152 miles of pipe ranging in size from 4 to 36 inches.

Normal, Ill., Plans Water Softening Project

SOFT water for Normal, Ill., a suburb of Bloomington, was assured recently when City Council members accepted a bid from the Permutit Co., New York City, for an aerator, three zeolite softeners, and four filters. The improvement is being designed and will be constructed under the supervision of J. J. Woltmann, consulting engineer, Bloomington, Ill.

The choice of zeolite softening over the lime-soda ash type was made because of the fact that bonds voted for the water improvement were not sufficient to cover the latter type of treatment. Another study of the plans by Mr. Woltmann indicated that zeolite treatment could be furnished within the sum available. Added factors weighing in its favor were the elimination of any need for sludge disposal.

The cost of reducing Normal's water to the desired state of softness will be approximately 1.8 cents per thousand gallons. The cost of the softening equipment will run to $34,455. An additional $9,000 will be required for a building.

Settling Basins: How Do They Work?

HERE are some points that you could study when analyzing the operation of the sedimentation basins in your water treatment plant. They were suggested by W. J. Murdoch, consulting engineer, at a recent joint meeting of water works men in Harrisburg. Mr. Murdoch pointed out that water works plant operators may learn what improvements are necessary in their sedimentation basins by noting some of the following conditions:

1. The existence of high velocities.
2. The existence of turbulence.
3. Unequal distribution of flow.
4. Depth of sludge throughout the basin. (You can note this when the basin is being cleaned.)
5. Unequal distribution of suspended material.
6. The effect of temperature.
7. The elevation of water throughout the basin, particularly where weirs are installed.
8. The effect of intermittent operation on the basin.

meet this TOM • CAT

on a dark corner

Erect the new TOM•CAT next to an ordinary street name sign—and compare it *at night*. See how sharply readable, how highly reflective it is from any angle . . . how it slants down to eye angle. TASSCO designers have actually revolutionized the conventional street name sign: TOM•CAT is highly functional *both* day and night.

• **sharply readable day and night** . . . constant, perfect legibility . . . uses resinous reflective materials.

• **vandal-proof** . . . set permanently at any angle . . . cannot be tampered with or destroyed . . . reflectivity indestructible . . . durable . . . permanent.

• **revolutionary design** . . . new, tear-drop shape slanted to correct eye angle.

• **modern construction** . . . all aluminum . . . weatherproof . . . boltless . . . strengthened by center staff.

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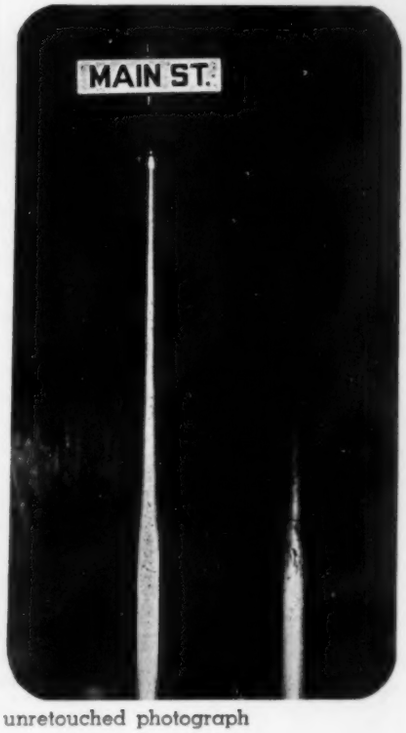

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TRAFFIC & STREET SIGN CO., 83 Foundry Street, Newark 5, N. J.

TOM•CAT is surprisingly reasonable in cost. TASSCO advisory service is ready to work with officials in adapting this new sign to local requirements. Full details on request.

Street Construction and Maintenance

Dallas' Long Term Paving Program

THE street improvement program for Dallas, Texas, based on work developed by Acting Director of Public Works Tim Conroy (THE AMERICAN CITY, March 1945, pages 98 and 99), is now mapped out for eight years.

During the summer of 1944 Dallas placed about 18,000 tons of hot-mix asphaltic concrete on old pavements and the reaction from the public on this work was so good that they placed an equal amount on other streets in 1945. The resurfacing provides a smooth riding surface appreciated by motorists.

The new program proposes expenditures of the following amount of money each year:

1946	$135,000	1950	$ 90,000
1947	135,000	1951	90,000
1948	110,000	1952	25,000
1949	90,000	1953	25,000

The 1946 estimate will cover the cost of placing 23,000 tons of hot-mix asphaltic concrete for resurfacing old pavements.

This long-term program was initiated by J. G. Rollins, Director of Public Works. Mr. Rollins recently returned to his original position upon termination of a leave of absence granted for the purpose of making the survey and plans of the Central Boulevard through Dallas.

Highway and Street Maintenance Costs

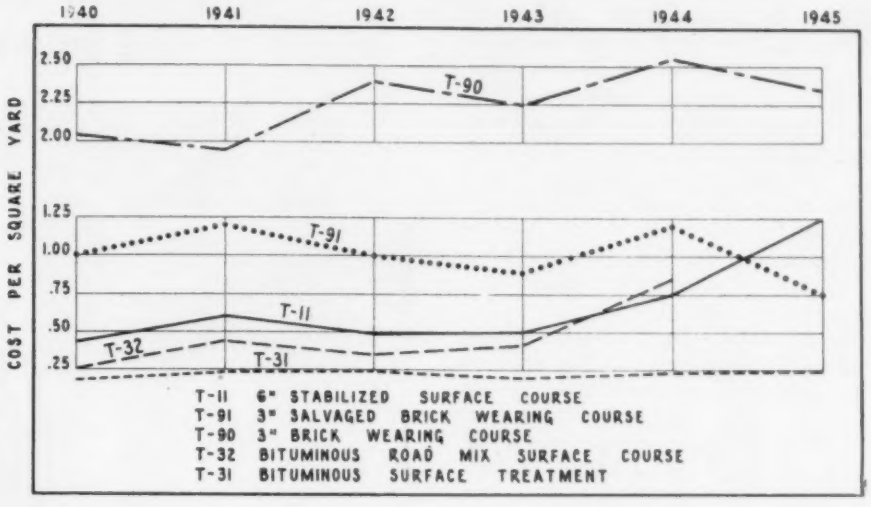
HERE is the way maintenance and operating costs look to the committee studying these expenditures for the Highway Research Board. They were summarized in a paper recently delivered before the Highway Research Board meeting at Oklahoma City, Okla., by Mr. J. S. Bright, Deputy Commissioner, U. S. Public Roads Administration.

1. On a lineal foot basis it cost between ¼ and ⅝ of a cent to fill joints and cracks in concrete pavements. If the pavement is more than ten years old, the cost increases noticeably.

2. It costs between 25 cents and a dollar per square yard to patch pavements with bituminous materials. No satisfactory data exists indicating the life of these patches.

3. It costs $4 to $6.70 per square yard to patch concrete with concrete. There are some indications that the cost per square yard of concrete patch decreases with the increase in its size.

Cost Trend of Types of Pavements—1940 to 1945



This graph shows how paving costs have varied in Ohio during the war years. Figures were compiled by the Ohio State Department of Highways under the direction of Perry T. Ford, Director, and cover highways exclusively. Highways are generally somewhat cheaper than streets for the same type of construction.

4. It costs between 7 cents and 2¾ cents per hole to drill holes in concrete pavement for mud-jacking. Information on the cost of the slurry to be pumped under the pavements is meager, but the cost probably is in the neighborhood of 10 cents per cubic yard. Information on the pumping of asphaltic material under the pavement is also meager, but it probably is around 12 cents per gallon.

5. The cost of maintaining a center-line traffic stripe indicates economy in the use of the broken center line rather than the continuous line.

Some Pavement Loading Factors

HERE are some factors influencing the stress in concrete pavements from loads applied to them which were discussed by G. S. Paxson, Bridge Engineer, Oregon State Highway Department, in a paper delivered before the Oklahoma City meeting of the Highway Research Board.

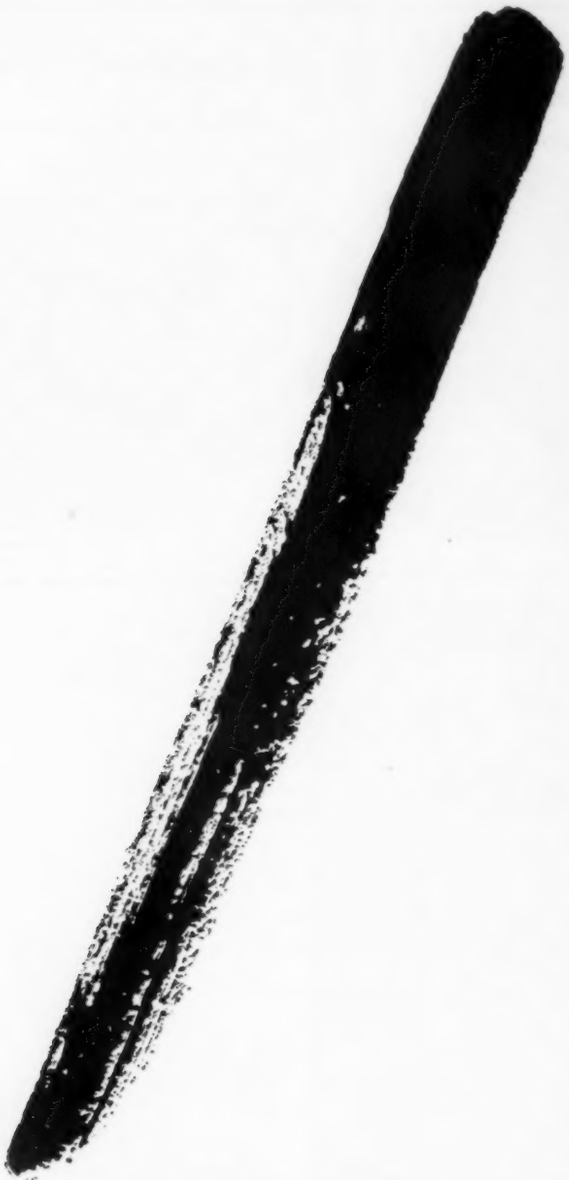
1. The average load per square inch of contact area that a tire makes with the pavement is only remotely related to the tire inflation pressure. For small loads the average load per square inch is less than the inflation pressure, while for large loads the reverse is true. The increase in inflation pressure with increasing load is caused by the distortion of the tire, but the increase in pressure is so small that it is negligible. Heating of the tire will have more effect on inflation pressure than distortion.

2. Varying the inflation pressure affects the pavement stress only through change in the contact area. Lower inflation results in a larger contact area for equal total loads. The reduction in stress, however, is so small that it is of no great importance under a 4,000 lb. wheel load. The stress is reduced 3.5% when inflation pressure is lowered from 90 to 70 psi, thus a proposal to regulate loads by tire pressure is impractical.

3. Total load, of course, is the greatest factor affecting pavement stresses. Doubling the total load increases the maximum pavement stress about 85%.

4. The quality of the subgrade has a relatively great effect upon pavement stress. As the subgrade quality is improved, the decrease in stress becomes relatively less. A point will eventually be reached where the cost of the subgrade improvement is out of proportion with the decrease in stress. However, accurate data on the quality of subgrades has not been developed.

5. Increasing the pavement thickness is the most obvious way of decreasing the pavement stress. An increase of a half-inch will reduce the stress by approximately 10%. The additional thickness is less effective as the pavement becomes thicker. One-half inch added to a seven-inch pavement decreases the stress by 11%, while one-half inch added to a 9½-inch pavement decreases the stress 8%.



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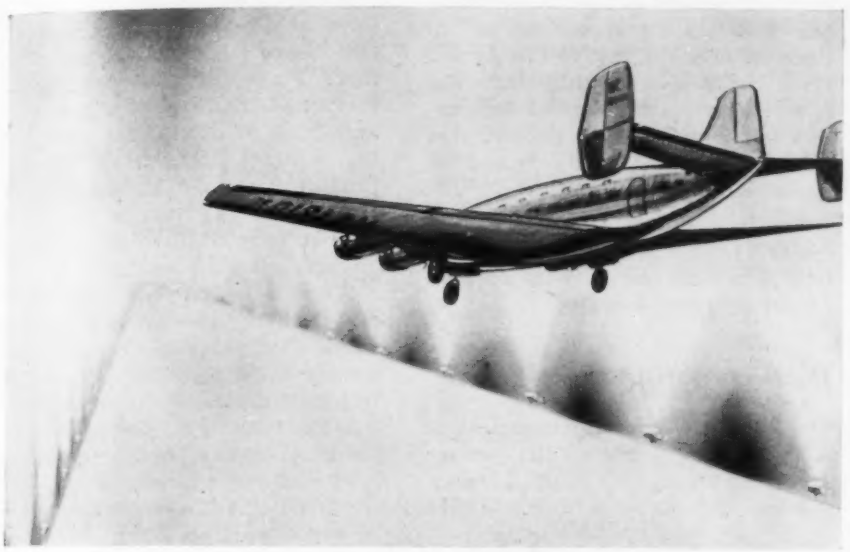
Idlewild's "Aisle of Light" Newest Landing Aid



An artist's conception of how a plane will land by following the "aisle of light," at New York City's Idlewild Municipal Airport.

AN "AISLE OF LIGHT," two towering walls of light flanking a broad concrete runway 8,400 feet long, will be one of the spectacular new aids that will make Idlewild Municipal Airport, New York City's gigantic new landing field, an "all weather" haven for pilots of transcontinental and world-flying aircraft.

The new lighting technique, combined with radar-radio instrument landing equipment and other war-developed blind flying aids, is being recruited by municipal airport officials to assist the airlines in maintaining precise arrival and departure schedules despite bad flying weather on the Atlantic seaboard. The idea was submitted to New York City airport officials by Adam Kopf, lighting expert of the office of Edward A. Sears, electrical consultants, engaged by Jay Downer for the Idlewild project.

Mr. Kopf conceived the idea of two parallel walls of light being used to outline a runway for pilots in "soupy" weather from previous experience in theatrical lighting. He cited the use of a curtain of light at Jones Beach State Park Amphitheater on Long Island, to mask the stage from the audience during water show scene changes as the inspiration for the landing aid.

W. A. Pennow, head of the Aviation and Marine Lighting Section of Westinghouse's Lighting Division at Cleveland, supervised the transformation of Mr. Kopf's idea into actual electrical fixtures for use on the runway.

The new landing guide is so planned, he explained, that the approaching pilot will see the runway as a dark area between twin "sheets" of controlled light that shoot upward without glaring in his eyes. The runway surface will be illuminated by smaller lamps from the same fixture to the preferred low surface brightness.

"Each unit of the new system of landing lights will include a 300-watt 'sealed beam' floodlight with a prismatic lens which will fan out light parallel to the runway," Mr. Pennow continued. "The units will be spaced 200 feet apart according to present plans, with provisions for 100-foot spacings in the future. The fanning effect will create an interlocked 'wall' of light a short distance above the runway."

The floodlight unit will have a contact light mounted on the same base, so that in good visibility normal runway lighting will be available.

The landing aid will use 30,000 watts of light, more than four times the light intensity used for the standard runways in service today.

The runway will have four 3,000-watt floodlights, a green arrow and red cross neon light traffic approach signal, and a newly developed smoke generator at each of its ends. The "aisle of light" projectors are placed at each side throughout the length of the runway.

"The green arrow and red cross neon approach lights are used to give landing signals to pilots of incoming planes," Mr. Pennow explained. "The green arrow is the traditional 'go ahead' signal and the flashing red cross is the emergency light to warn the pilot that he cannot land.

"These lights have high visibility to all planes in the traffic pattern. The shaft of the arrow is 83 feet long and the red cross is 83 feet in width and in length."

The smoke generators will produce a column of smoke to show wind characteristics directly on the runway, are easily seen by day, and at night are lighted by the runway floodlights. Mr. Pennow said that the smoke generators are more effective for giving exact wind conditions on a runway than the customary wind-sock or wind tee.

The Idlewild Airport embraces nearly 5,000 acres of land at the head of Jamaica Bay in the southeast corner of New York City. It will cost 160 million dollars, according to present plans, and will have nine miles of runways when the first six runways are completed.

Lighted Float Defines Seaplane Landing Areas

A SET OF lighted floats defines the the area reserved for seaplane landings in the Flushing Bay section adjacent to LaGuardia Field. These restrictions are placed on marine traffic within a controlled area so that, by agreement, a seaplane will not have to give way to rowboats, sailboats, and small surface craft as the international "Rules of the Road" used by mariners require elsewhere. The Coast Guard restricts traffic only while seaplane operations are in progress.

The agreements give the seaplanes approximately 9,000 feet of cleared area available for landing and take-offs. This area is defined by a special buoy marker light consisting of a storage-battery operated light supported by a light pneumatic doughnut. The lights are turned on and off by a man in a motor boat who touches a small antenna on a buoy with an activated metal rod as he goes by. The floats are of Firestone Tire and Rubber Company manufacture.

Sewerage and Sewage Treatment

How to Operate an Imhoff Tank

HERE are some points of information that will help improve the operation of Imhoff tanks, particularly those that are used in the smaller sewage treatment plants. These were outlined by Jerome H. Svore, Sanitary Engineer for the North Dakota State Department of Health, in a paper presented at the annual convention of the South Dakota Water and Sewage Works Conference.

1. Skim the chamber daily. A skimmer made from a large long-handled fish landing net with 16 mesh copper wire screen instead of the network is satisfactory.

2. Squilgee the inner walls and sloping bottoms at least weekly.

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5. Draw sludge whenever soundings reveal accumulations within two feet of the slope. The slope should be black; grayish streaks indicate partial digestion.

6. Draw sludge solely to prevent the liquor of the sludge blanket from breaking through.

7. Keep the scum in the gas vents broken by rodding with a scum hoe, spraying, or pouring water on it.

8. Fill the sludge pipes with water after the sludge has been drawn to prevent caking.

9. In the early part of the summer when active digestion is again resumed because of high temperature, a small amount of lime is often found of value to prevent foaming.

New Jersey to Supply Monthly List of New Sanitation Projects

THE New Jersey Department of Health contemplates issuing a special monthly release listing projects covering the construction or alteration of sewer systems, sewage treatment plants, water supply systems, and water treatment plants to supplement the lists that have been carried in the bimonthly publication *Public Health News* issued by the Department.

Because of loss of time at the printers, these lists are often from two to three months old by the time they reach the regular mailing lists. The new system would issue the information within two weeks of the time that the projects have been approved by the department.

The plan will be executed, according to J. Lynn Mahaffey, Director of Health, if there are sufficient requests for the proposed bulletin.

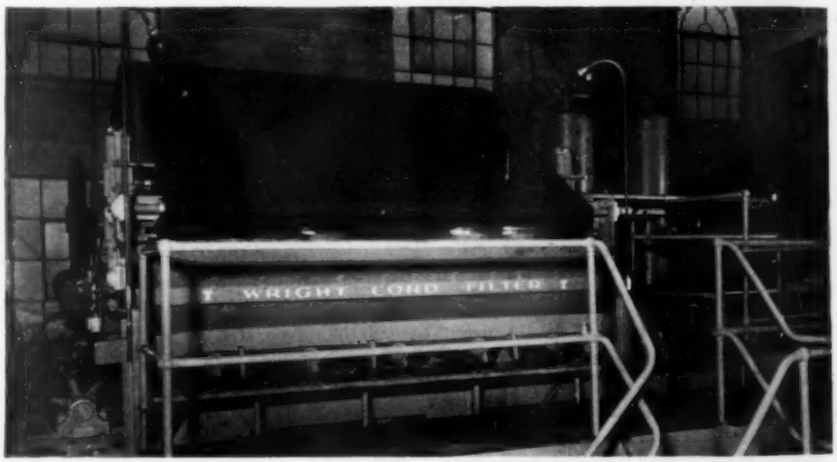
Waterproofing that Works

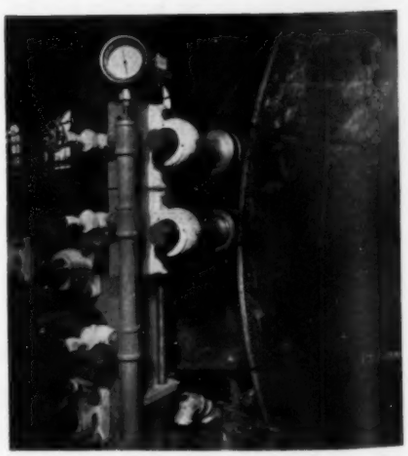
E. E. SIMPSON, Superintendent of the East Peoria, Ill., sewage treatment plant, has found a waterproofing method that really works. He uses it for waterproofing tanks, manholes, and the basement floors of his plant.

All of his pumps and piping are located in the basement, and condensation caused the floor to be wet all the time. To beat this, he used a roofing compound known as Flint Kote Static asphalt, a product of the Flint Kote Co., Chicago Heights, Ill., a plastic product that mixes well with water. By brushing on two coats he was able to completely stop all condensation and give himself a dry basement.

"Our secondary well also leaked very badly," Superintendent Simpson states. "We previously treated it with hot tar but it peeled off. Consequently I used this plastic mixed with one part sand and one part cement and have had no leaks since. It also has been helpful when used on pipes which are laid in wet trenches."

Perth Amboy's Cord-Type Filter





Enough data have been collected covering the cord-type vacuum filter being used at Perth Amboy, N. J., to give a more concrete pictures of its operating efficiency. (*See* THE AMERICAN CITY, *January* 1946, *pages* 13 *and* 77.) *Inventor Arthur Wright states that you can expect the cord-type filter to produce cake at a rate at least equal to the cloth-equipped filter on its first revolution when the cloth is absolutely clean. The cord-type will maintain this rate, he points out, while the rate of the cloth-type will go constantly down. Regarding the life of the filter cord, three months of operation at Perth Amboy have disclosed no deterioration of the cord as yet. In the opinion of officials at Perth Amboy a one year's life of the cord is conservative.*

The view at the right shows how the spray continuously cleans the cords. The sprays are visible in the center of the picture. The cord filter attachment is being manufactured by Titelfex, Inc., 115 Frelinghuysen Ave., Newark, N. J.

Public Safety

New Technique Employing Water Spray to Put Out Flaming Gasoline

ONE OF THE most vicious forms of fire, growing in importance with the increased use of oil-burning motors, has been the gasoline fire. It spreads rapidly. The old method of fighting most violent fires with heavy streams of water only served to spread blazing gasoline further. The newer technique of fighting a gasoline fire with fog nozzles giving a fine spray of water has achieved good results.

A high-stakes test of this water spray technique was made last winter in New Haven, when a freight train piled up and a tank car of gasoline caught fire, threatening the main mercantile area of the city. The fire spread quickly, with over 10,000 gallons of burning gasoline flooding the right-of-way and endangering buildings beside the railroad.

The fire department, equipped with fog-nozzles and other fog appliances, went into action, using a technique which they had been practicing for the previous six months. In 25 minutes, they reduced the area of fire from several hundred feet to 30 feet in diameter. In 40 minutes, the fire was out.

Proof of the value of this method of fighting a gasoline fire was stressed by Paul P. Heinz, Chief of the New Haven Fire Department, who said in a report of the event: "Had it not been for the training the firemen had received and the fact that our department was properly equipped with fog-nozzles, New Haven would have been faced with a conflagration involving the city's mercantile area."

The National Board of Fire Underwriters' Committee on Fire Prevention and Engineering Standards has issued a series of bulletins on "Controlling of Flammable Liquid Fires," together with other prevention and protection subjects, which can be obtained by writing to: National Board of Fire Underwriters, 85 John Street, New York 7, N. Y.

At the right are some of the charts used in the Traffic Accident Summary for 1945 of the Department of Public Safety, Bureau of Traffic Planning, of the city of Pittsburgh to emphasize the cost of carelessness. Like the results of the poll discussed on this page, these charts stress the fact that many more fatal accidents occur at night than in the hours of daylight.

Seeing Saves Lives at Night

RETURNS from a poll announced by the Street and Traffic Safety Lighting Bureau, Cleveland, Ohio, show that 96% of the police officials replying from cities of 10,000 population and over believe adequate street lighting can reduce the number of traffic accidents and that 71.5% consider their own cities do not have adequate traffic safety lighting.

The police chiefs who attempted to estimate the possible reduction of night traffic accidents which would be effected if traffic arteries were adequately lighted gave opinions ranging from 5% up. The 38% of replies giving high estimates came largely from cities which have street lights designed for present traffic conditions. A Utah city cited nine night traffic fatalities during one year before improved street lights were installed and none in the four years since. A Washington city reported a 73% decrease in traffic fatalities following installation of adequate street lighting.

PERSONS KILLED		
	1945	1944
Pedestrians	43	38
Drivers	14	10
Passengers	14	7
Bicyclists	2	0
TOTAL	73	55

Light Conditions		
CONDITION	ALL ACCIDENTS	FATAL ACCIDENTS
Daylight	1812	24
Dusk or dawn	132	3
Darkness	1093	43
TOTAL ACCIDENTS	3037	70

Days of Occurrence		
DAY	ALL ACCIDENTS	FATAL ACCIDENTS
Monday	476	9
Tuesday	489	5
Wednesday	486	14
Thursday	445	7
Friday	401	12
Saturday	416	12
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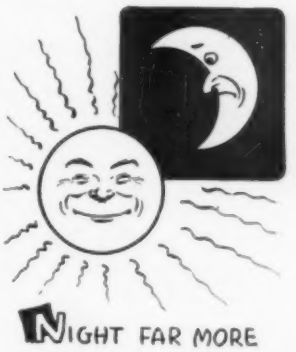

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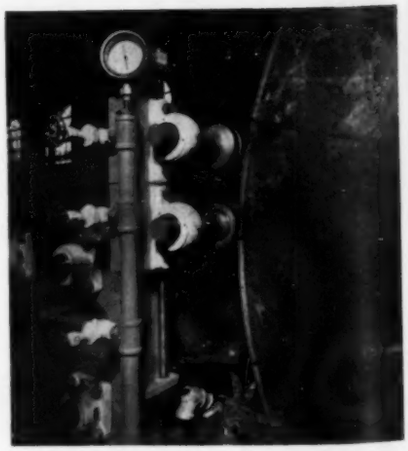

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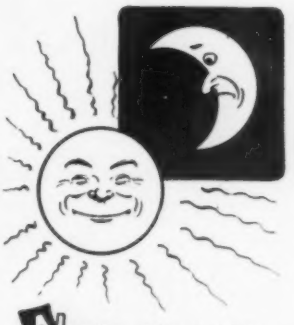

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GUARDIAN

..DROTT BULLCLAM SHOVEL METHOD OF SANITARY FILL NOW SWEEPING THE NATION

The precious health of many citizens in this country and Canada is now being guarded by the Drott Bullclam Shovel Method Of Sanitary Fill. Open city dumps are fast being closed! Now refuse is buried, completely compacted, thoroughly covered—taken away are the breeding places of flies, rats, mosquitoes, maggots and other menaces to health.

Your community, too, can gain this health protection... by adopting the Drott Bullclam Shovel Method Of Sanitary Fill... at the same time save on disposal cost. Here is your most economical method, too — one machine performs *all operations!* It will pay you to investigate.

FREE Get The Complete Story! Send For This Book—"Answer To Your Waste Disposal Problems ... with the Drott Bullclam Shovel."

Operated by DROTT POSITIVE, CLOSED HYDRAULIC SYSTEM. SMOOTH • QUICK • DEPENDABLE. Keeps dirt and air out... keeps oil in! Used successfully on Drott equipment for many years.

BUILDING A SANITARY FILL WITH A DROTT BULLCLAM SHOVEL

1. A trench is dug to suitable depth and length into which refuse is dumped. As one trench is being filled with waste the next is excavated.
2. Refuse is thoroughly compacted by Drott Bullclam Shovel traveling back and forth over it. All tin cans, crates and other waste are chewed-up and flattened.
3. Material excavated from trenches is used for covering refuse. Drott Bullclam shovel digs, transports, dumps the dirt. Covering is a continuous operation. All refuse is completely covered every night.
4. The completed fill... how different from an open city dump! This site can be used as a park or playground. Gone are the menaces to health.

Vol. LXI, No. 4 The American City April 1946

A Caution Concerning Civic Centers

Series of small public building groups urged as functional part of the business center

By HERBERT W. STEVENS
Associate Planner
City Plan Board, Dayton, Ohio

In many cities which are now planning for the construction of new buildings, the problem of where to locate such buildings has led to questions of this kind: Should they be erected side by side as the nucleus of a civic center? Are they suitable buildings for a civic center? Is a civic center desirable at all? If so, where should it be built?

This article discusses some practical phases of this problem.

CONCEPTS of the civic center vary, but the prevailing idea is that a civic center can be a group of public buildings (any public buildings for general, adult use) on related and contiguous sites. The common assumptions are that government offices can cooperate better and give more efficient service if located near one another, and that a handsome group of public buildings will enhance the appearance of the city. The first assumption is based on functional considerations, and the second on esthetic. They must be weighed carefully to discern their relative importance and to measure their fitness in any modern city. The precedents that have been established in cities that boast of "civic centers" may lead only to perpetuation of stereotyped planning, rather than to efficient solutions of the problem of public building location.

Observation of the operation of public offices is necessary to determine what their operating relationships are, before determining what their architectural relationships should be. The strongest relating link must be given proper importance in deciding which buildings are to be most closely related. For example, jails and courthouses should be adjoining, or actually combined in one structure. All information relating to land ought to be located in one office, but if it cannot be, the buildings housing those offices ought to be adjacent to each other. That is one reason for placing city and county office buildings side-by-side in the county seat. Investigating the operation of other departments reveals further functional relationships. City and county health departments sometimes work together in joint health programs or share common facilities, such as a clinic or a laboratory. Engineering departments must cooperate on water supply and sewage disposal problems or in the construction of streets and highways. Planning commissions, above all, have to collaborate in making their studies and conceiving their plans. All departments whose functions overlap or whose areas of service meet at boundary lines will benefit from close physical relationship, either in joint city-county buildings, or in separate buildings close to each other. (This presupposes, of course, that government reorganization is highly improbable.) The average citizen will favor such an arrangement, for he is often shunted from one government office to another in the pursuit of his business. Though this is sometimes the fault of the individual who may have gone to the wrong office in the first place, it is as often necessary because of related services. Checking regulations on property is a case in point. The annoyance that this causes is reflected in criticism of government, and can be reduced by locating related services close together.

Functional Relationship Vital

If the investigation of functions of government buildings is carried into the services of public cultural buildings, a different condition is revealed, for cultural services have little in common with administrative services. There is seldom an exchange of personnel, or of records, or of services, between the manager of an auditorium and the officials in the city hall, or between staffs of a museum and the officials of the court house. They have no overlapping functions. A public auditorium, or an art museum, or library will operate quite successfully without any relationship to government administration offices. Functional relationships between buildings are often expressed by the amount of traffic between them, and a count would probably reveal more persons going in and out of a courthouse, to stores and restaurants downtown, than to a public library. Therefore it would be more logical to locate a courthouse near downtown stores and restaurants than near a public library. In spite of this, however, most civic center plans show libraries and courthouses and city halls in nice architectural relationship, regardless of this absence of functional relationship.

Buildings Downtown

It is apparent from these relationships that most public buildings serving the general adult public need to be downtown. This applies to both cultural and administrative buildings. To place an auditorium beyond walking distance from the center of transportation or from other downtown services, such as restaurants, railroad and airline offices, and hotels would jeopardize its financial success . . . especially as a convention center. Modern library science demands a location for the central public library near the confluence of heavy pedestrian traffic so that it can display its wares. Public officials must consult with executives of private corporations often enough to make it convenient for public offices to be near private offices; and almost in reciprocal fashion, many private business men with downtown offices must use government office records. For instance, attorneys must appear in city, county, and federal courts. Realtors, engineers, architects, executives of banks, building and loan agencies, and others who need easy reference to land records and court records find the downtown location of public offices a distinct advantage. Therefore city and county office buildings should be near other office buildings. And added reason is the fact that citizens who live

outside of the business district, in residential areas of the city or county, usually combine their trips to city or county offices with visits to stores or private offices.

There is a growing realization that the civic center as an ornament has been highly overrated. Too often, though it be an architectural gem in itself, it is badly related to the composition of the city. This has been well expressed by Eliel Saarinen in his recent book, "The City":

"In general, this (civic embellishment) means some stylistic cosmetics for certain parts of the city. In most instances it is only an echo of what we have previously characterized as the Formal Continuance, a movement which, as can be remembered, was an inheritance from the Renaissance days, but which in the course of time has declined into a meaningless decorative shadow of its former grandiose self. This kind of treatment is to dress the city in borrowed theatrical effects. Civic embellishment in such terms has little in common with the indigenous development of the city toward architectural order—toward beauty if you will—by means that really express the characteristics of the place and the people. Civic embellishment in such terms has little in common with the vital problems of living and working in the city.

"Even small towns are often ambitious to decorate their 'civic center' by means of imported and imitative forms, and, about this center, business districts and slums cluster in dirty heterogeneity. This **is not planning.** Nor is it design. It is like hanging false diamonds around a dirty neck."

Outmoded Group Plans

There is more here than a criticism of the use of Renaissance architecture in the Twentieth Century. Even assuming that we have been able to part from Renaissance styles for public buildings, from classic columns and details of design, we still tend to favor Renaissance group plans: we are still copying the Beaux-Arts conception of what a civic center ought to be. Examination of proposed civic center plans for many cities in this country will reveal that a majority of them are attempting to achieve grand vistas and formal axes, and to create plazas, malls, esplanades, promenades, and other features of Beaux-Arts planning. These ideas were conceived in the time of kings and courts, and when the attempt is made to cram that type of plan into an active, modern city, the result is an inordinate public expense, and a discordant ornament.

The ornament is discordant for several reasons . . . first, because it fails to follow the logic of functional relationships internally; for it is no more logical to group together all buildings owned by government agencies, regardless of their functions, than to group all buildings owned by Protestants, regardless of their use; or to group all buildings managed by one real-estate agency, regardless of their purposes. Secondly, it fails to follow the logic of functional relationships externally. As has been demonstrated, public buildings are often more directly related to private buildings than to other public buildings. To group public office buildings on their own site, centered upon a mall, with their backs to the activities of the city, expresses a severance rather than a cementing of the bond between government and other urban activities. It results in an isolation from the movements and the functions of the city, rather than an integration with them and a utilization of them. If a city had interior block, pedestrian circulation, that approach might be feasible . . . but no large city has.

It must be realized that government services are only a small part of all the services to be found in the usual metropolitan center, and they deserve no more importance than some others. To segregate public buildings on their own contrasting site exaggerates their importance; to assume that they will be the center of civic pride is wishful thinking. The belief that a group of public buildings will be a civic center in spirit as well as in name must be recognized as an illusion. Centuries ago that may have been true; today it is not. In the days of the Greeks, the group of buildings and related open spaces constituting the agora was a civic center in every sense. It was the market and the meeting place. In the time of the Romans, the forum was the civic center. But in a Twentieth Century American city, *the downtown business center is the civic center.* That is the focal point of transportation, of trade and commerce, of recreation, and of general civic activity. Consequently the best that public buildings can do is to contribute to the general improvement of the business center; functionally to be an integral part of that center, and esthetically to share in a larger plan for its general improvement. That does not imply that public buildings may be scattered indiscriminately about the business district. It does not mean that principles of good architecture need be sacrificed. But it does mean that clearing a large area of economically productive property for a spacious civic center is unjustified. The final result should be a series of small public building groups.

Statement of Principles

A statement of principles will clarify this conception.

1. Sites should still be selected so that building groups can be planned but the groups should be limited to buildings that are functionally related. One group might be a government office center; another might be a government courts center; a third might be a cultural center.

2. Accepting the principle that there must be enough open space about the buildings to provide an adequate view of the buildings does not imply that space must be designed as a public square or a grassy mall. View can be obtained across a wide thoroughfare, or a river, or even a parking lot . . . and parking lots can be made attractive. Necessary use of open space means that clever site selection must be relied upon rather than clearing a large site.

3. Public buildings should be integrally related to the business center. This does not mean that they must be in the heart of the center; a better location might be on the fringe. The point is that any site which interferes with normal traffic flow or economic activity of the business center should not be considered. It may be too large, or it may be illogically placed: whatever the reason, it will not be an integral part of the city plan.

4. Completing the theory of integration, in contrast to that of segregation, private buildings may be included in the public building groups.

5. To improve the appearance of the business center would require a plan so comprehensive that it would include slum clearance, rehabilitation of blighted areas, development of natural features to best advantage, creation of new parks and open areas, providing for landscaping by building-line setbacks, redesign of streets, alleys, street lights, advertising signs, revising zoning, and perhaps establishing architectural control. These are beyond the scope of a plan for the location of public buildings, but the public building group plan should include those elements of the comprehensive plan that are possible.

These principles relieve the planning body of the necessity for acquiring a large site. They can establish a far more flexible plan with several choices for building sites within its scope. The inclusion of existing private buildings of suitable architectural quality and function will do much to obtain the interest and support of citizen groups, especially if the plan includes parking space which will serve the private buildings as well as the public. Construction can be done in easy stages, and the plan will, if carried to a logical conclusion, develop into a master plan for improving the appearance of the downtown business center.

Ideas Know No Population Barriers

FROM villages of a thousand population or less to cities of a million or more THE AMERICAN CITY is constantly seeking, for the benefit of its readers, ideas and information on problems of municipal administration and current progress in local public improvements.

But because of the wide range of communities served, the editors are always concerned with assigning among the various population groups a proper proportion of space in the magazine. Occasionally a subscriber in a large city will indicate that his happiness would advance if we published less small town stuff; while village officials may express the contrary wish—that more space be given to their problems and less to the activities and projects of the cities of metropolitan size.

It is impossible, of course, to so edit a magazine that every article will be of interest to every reader. But no matter how big the city, its officials may often gain helpful ideas from what forward-looking small towns are doing; and the village on its part may certainly derive aids or warnings from the metropolis—both as to what to do and what not to do.

To cite only two examples from the current issue:

On page 111 the reproductions of the covers of three small city or village reports suggest a standard of public relations which some of the big cities have not yet attained. And on pages 113 and 114, the analysis of distinctive features, of the new zoning ordinance of Los Angeles presents some ideas—such as the new procedure for handling non-conforming uses — which many a small community could use to advantage.

Ideas know no population barriers. Help us in our search for them. As a philosopher once pointed out, if we can learn to do everywhere the worthwhile thing now being done somewhere, our American cities—and the world—will be remade.

Construction Costs and Construction Volume

ALTHOUGH the dollar volume of construction should reach an all-time high by 1950—nearly 50 percent more than the peak war year of 1942—the actual construction will be much less. This was pointed out by L. R. Howson, of Alvord, Burdick, and Howson, consulting engineers of Chicago, in a paper delivered before the annual meeting of the American Society of Civil Engineers in New York.

Mr. Howson finds the Department of Commerce estimate that the dollar volume of construction in 1950 will total $15 billion perhaps too optimistic in the light of past performance. However, if this figure is accepted and weighted by the cost index in which the year 1913 equals 100, the volume of construction indicated for 1950 will be approximately 30 percent below the construction of 1929 and approximately 20 percent below 1942.

Uncertainty over costs and efficiency, particularly in the labor picture, make contractors reluctant to bid on projects of any magnitude. Stabilization of wages, even at a higher level, would affect the contractor's bid less than the present uncertainty. However, Mr. Howson warned that "if costs rise too high, the public will refuse to pay the prevailing prices and construction will come to a dead stop. It matters little what the hourly wage may be if no one is employed."

Report from Her Honor, the Mayor of Hastings, Minn.

Mrs. Vernon Truax, Mayor of Hastings, Minn., examining plans with her council.

THE editor of THE AMERICAN CITY recently wrote to Mrs. Vernon Truax, who has been Mayor of Hastings, Minn., since May 1, 1944, inquiring about the progress of public works and received an interesting letter in reply from which we quote:

"We as a council feel we have accomplished some very necessary improvements. Sewers and water mains have been extended to parts of the town where they will be an inducement for people to build in desirable locations. This project cost $72,820.82.

"The sidewalks were given considerable attention and the roads were given a general repair job besides a good number of miles of new black top. The cost of these improvements amounted to $25,781.65.

"These improvements were accomplished in spite of a charter provision that a petition of 51% of the property owners is necessary before such improvements can be undertaken.

"The bridge to span the Mississippi River is at present (March 1) the big issue. The plans call for viaducting the main street and some discussion has arisen as to whether damage will result to our business district. Our first bridge, built in 1895, was of the spiral type, but, because of present day traffic conditions, this type of bridge is no longer suitable. The first plans approved called for spanning the main street. Since then five different plans have been drawn up and discussed, but the first plan is always preferred. It was approved by the last two councils."

The sewage enters the plant by flowing into a concrete receiving well. From there it flows through the hand-cleaned bar screen into the grit chamber. Notice the Dempster-Dumpster body at the right.

As the sewage leaves the grit chamber it passes through a Parshall flume at the discharge end that measures the quantity of sewage flow and controls the height of the grit chamber flow.

Making an Activated Sludge Plant Behave

Hackensack, N. J., shows what can be learned when operating a difficult sewage treatment plant

ACTIVATED sludge plants as a class are temperamental, despite the fact that they have a reputation for producing the finest effluent in the sewage treatment field. The 5½-mg Hackensack plant, whose operation Arthur Lehmann took over back in 1940, was no exception. In fact, its persistence in producing bulky activated sludge, its difficulty in digesting mixed primary and activated sludge, and its unusual general layout made its temperament greatly respected in this part of New Jersey. Sewage operators watched carefully to see how the new Hackensack superintendent would control his difficult charge.

The Old Plant's Double Primary Treatment

The plant replaced a unique treatment works—a sort of double primary treatment plant which didn't give the sort of removal figures for suspended solids and 5-day BOD that a city such as Hackensack should have. There were actually two of these little plants. Each consisted of a settling tank, an Imhoff tank, and a sand bed.

At present, during normal flows, the old plants are by-passed by an interceptor varying in size from 24 to 30 inches and equipped with a 5½-mgd pumping plant which has three Fairbanks-Morse non-clog centrifugal pumps with capacities of 1,300, 1,600, and 1,900 gpm respectively. Hackensack's sewers are in general of the combined type, so storm flows over 6 mgd go to the settling tanks and receive a rough primary treatment before being discharged into the river. The sludge from these primary tanks is combined with the incoming raw sewage and goes to the main plant.

The sewage, when it comes to the plant, passes first through a manually cleaned bar screen with ½-inch openings. It then enters a pair of 40-foot Link-Belt automatically cleaned grit chambers equipped with washing apparatus to remove organic matter. These channels run into a single Parshall flume, at the discharge end, which measures the flow of sewage and controls the height of the grit chamber flow. A Builders-Providence Chronoflow automatically records these quantities.

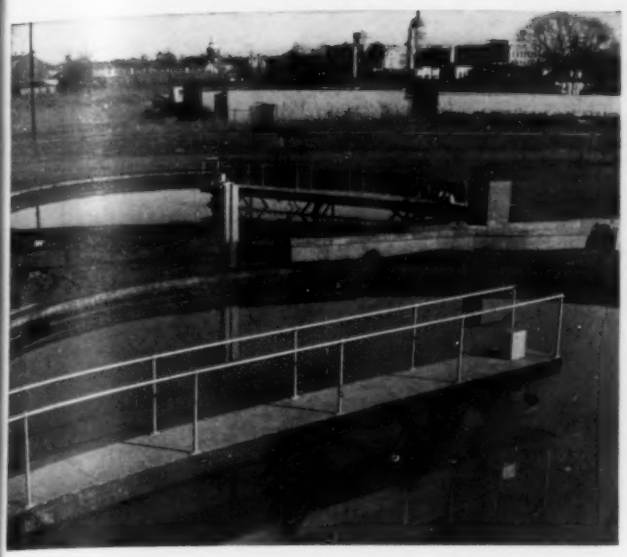
Primary Clarifiers Efficient

The grit-free sewage then goes to a pair of circular primary settling tanks whose operation has been particularly successful. These Link-Belt settling tanks, 60 feet in diameter, 9 feet deep at the outside, and 11 feet at the center, use a submerged scraping mechanism that rotates slowly around the tank on a traveling rack. A small sludge outlet travels with the collector directly in the path of the scrapers. This arrangement reduces the possibility that the sludge will be diluted by sewage during pumping—a bugaboo sometimes encountered in less suitable types of mechanisms.

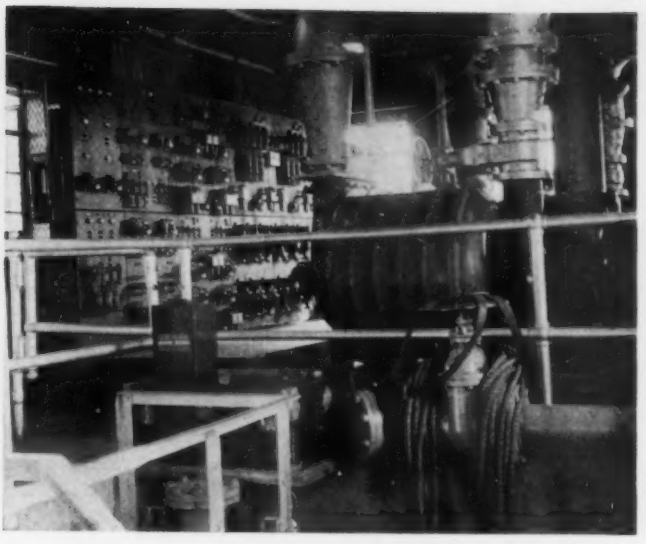
Two Carter plunger-type sludge pumps transfer the primary sludge to a pair of converted Imhoff tanks used for primary digestion. This incidentally has been subject to a bit of refined operation that is cutting operating costs and making it possible to keep the primary sludge fresh and at maximum concentration. Rather than leave the sludge in the tanks for 18 to 20 hours before drawing, Superintendent Lehmann has put the operation of the sludge pumps on an intermittent basis, controlling them through the action of a Tork time clock; this allows the pumps to run a few minutes out of each hour. Another time clock coordinates the action of the primary clarifiers with the sludge pumps, starting them a few minutes before pumping begins and stopping them a few minutes after pumping ends. Thus the primary clarifiers can be shut off for at least two-thirds of their regular operating time, cutting both operating and maintenance costs.

The idea of controlling primary sludge pumps by time clock was originated by Mr. John Hood, Superintendent of the Sewage Treatment Plant at Ridgewood, N. J., who used it to overcome the action of a defective sludge collector.

Sludge digestion is divided into primary and secondary stages. Primary



From the flume the sewage then flows into either of two primary clarifiers. These have central collecting mechanisms that Superintendent Lehmann reports produce an excellent sludge.



Two Hoffman blowers furnish air for the aeration tanks. Left of the switchgear is the Tork time clock used to govern the operation of the clarifiers. Rescue equipment is in the foreground.

digestion occurs in the primary digestion tanks equipped with Dorr mixers having vertical propellers. Each of these tanks will hold 200,000 gallons; the two tanks give a digestion factor of approximately two cubic feet per capita. Secondary digestion, actually little more than sludge storage, occurs in a 60-foot 500,000 gallon tank, unheated, and equipped with a Dorr floating cover to store gas from the primary tanks.

Superintendent Lehmann likes to keep his primary digestion tanks heated to approximately 100°F, although he has difficulty keeping them above 75° in the winter because of the water table. The sludge, in consequence, contains more volatiles and is much harder to filter. He has improved the original heating system considerably by doubling the hot water coils, which are suspended vertically in the primary digesters, and by replacing the original 17-gpm hot water circulating pump with one whose capacity is 50 gpm.

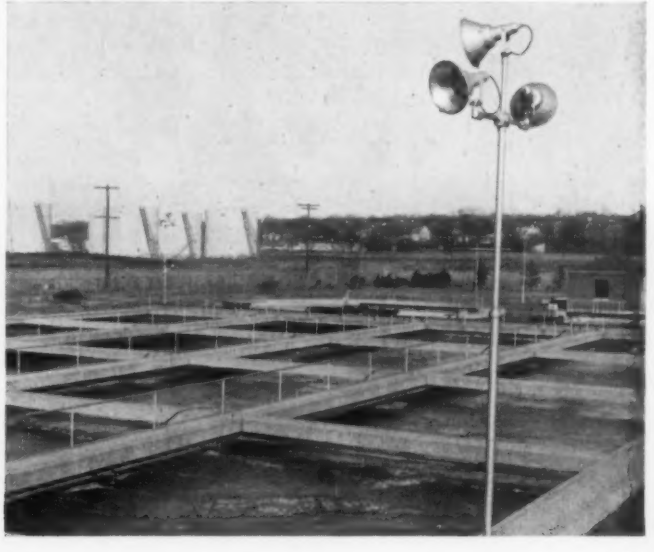
One phase of operation has been helpful in insuring that only digested sludge goes to the secondary tank. The height of the sludge in the primary tanks is controlled by a standpipe located outside the tank. This pipe is housed in a small well permitting the sludge to overflow from it and drain by gravity to the secondary digester. The height of the pipe is adjustable since it is built of a series of rings or collars that nest one on top of the other.

Originally the operation contemplated introducing around 6% raw sludge which would cause an equal volume to overflow through the standpipe and drain to the secondary digester. However Dr. R. S. Ingols, who for a time served as chemist for the Hackensack plant, pointed out that the mixers in the primary tank combined the raw and the digested sludge quickly enough so that there was opportunity for part of the raw sludge to go directly to the secondary digester.

To eliminate this, and to insure that only digested sludge went to the secondary digester, Dr. Ingols recommended that the collars of the standpipe be removed for the length of time necessary to allow sufficient sludge to flow from the primary to the secondary tank to make room for one day's pumping of raw sludge. When the proper amount has made its hydraulic transfer, the operator replaces the rings and raw sludge is pumped to this digester during the next 24 hours. The sludge in the alternate digester receives a minimum of 24 hours digestion before part of it is transferred to the secondary digester. Since the rate of digestion falls off rapidly after 24 hours, the condition of the short circuited material is then less conducive to the formation of gas and consequent disturbance to settling in the

RIGHT: *Effluent from the clarifier goes to four aeration tanks whose operation is controlled carefully by frequent dissolved oxygen tests made by the operators.*

BELOW: *Effluent from the aeration tanks receives post-chlorination and then passes through the baffle contact chamber before being discharged.*



secondary digester. This procedure, together with minimum pumping of primary sludge and improved digester heating has produced a consistently good supernatant.

The digested sludge goes to a Conkey vacuum filter where it is dewatered and disposed of as fill material.

How the Aeration Tanks Operate

Effluent from the primary tanks goes to four aeration tanks located in parallel and each measuring 28 x 135 x 14 feet in depth to the water line. The four tanks have a total capacity of 1½ mg. Superintendent Lehmann reports that their relatively wide dimension in comparison with their length makes operation somewhat difficult because of the existence of short circuiting. A pair of Hoffman blowers delivers air to the tanks at an average rate varying between 0.3 and 0.5 cubic feet per gallon of sewage. The theoretical detention in the tanks is 12 hours at the average rate of flow with 6 hours being the minimum. The air is administered to the tanks through stationary diffusor plates located in the bottom of the tanks to give the sewage a spiral action. The amount of return sludge varies greatly, depending upon the operation of the plant. With things under good control, the operators can cut it as low as 10%, though at times when operations were difficult and bulking became a problem, they have boosted this as high as 50%.

Superintendent Lehmann has his own convictions on sludge bulking based on his successful handling of the problem at his plant. He agrees with the school of thought that feels it is frequently caused by the condition of the incoming sewage. This is borne out by the fact that though bulking does not occur often, it is just as apt to do so when the activated sludge solids and dissolved oxygen in the aerators are high as when they are low. There have been long periods without bulking in spite of mixed liquor solids below 1,000 ppm and DO averaging about 0.6 ppm. On the other hand, bulking has occurred when they approximated 2,000 ppm and 2-3 ppm respectively. It seems most apt to occur when storms flush stale and septic sewage into the plant and when light oil is consistently present in the sewage.

When sludge bulking does occur Superintendent Lehmann has found the quickest and most economical way to deal with the problem is to get rid of it as rapidly as possible. He contends that to bring it back into condition is a long and expensive process requiring high air rates, and that in such procedure the "cure" is probably achieved by the gradual wasting of the bulky sludge and its replacement by healthy sludge. To accomplish this quickly when maximum rates of wasting to the primary clarifiers are insufficient, he "dumps" it. Fortunately, the Hackensack plant has adequate aeration capacity and one aerator can be taken out of service at any time. Into this aerator return sludge is run at a rate sufficient to drop the aerator solids from 300-500 ppm in a day or two. This can be wasted gradually to the primary clarifiers at a concentration not much higher than ordinary mixed liquor.

This truck with its Dempster - Dumpster body is particularly handy around the Hackensack plant. The operators use two bodies, one to collect dewatered sludge, the other for screenings and grit. Thus, one truck can handle tasks conveniently. Superintendent Lehmann hopes to get more of these units in a larger size.

Uses Centrifugal Pumps for Return Actviated Sludge

Superintendent Lehmann's experience in the handling of return activated sludge with centrifugal pumps in place of the plunger pumps is significant. Plunger pumps, he feels, are the right type to handle primary sludge, but do not do a satisfactory job with the activated sludge. By the installation of centrifugal return sludge pumps to double the capacity of the original plunger pumps, he has been able to reduce maintenance from approximately $200 per year for each pump to a negligible sum.

Ever since the activated sludge pumping capacity was increased, sludge bulking has been an infrequent and minor problem. Not so sludge rising, which has become a summer problem. Sludge rising in the final tanks, Superintendent Lehmann points out, often is confused with sludge bulking although they have very different causes. Bulking occurs because of under-oxidation, while the sludge rising in the final tanks is the result of a combination of over - oxidation and short - circuiting through the aerators. Because adequate measures to reduce short circuiting would involve a considerable capital outlay, he reduces the over-oxidation or nitrate production by reducing the detention period in the aerators by cutting out two of the four aerators and keeping the dissolved oxygen content of the aerators down to 0.6 ppm. As a result of this handling of the problem, not a single case of sludge rising occurred last summer. This method has the added advantage of reducing the cost of power for air supply.

It took time, but Superintendent Lehmann has been able to take these steps which have improved troublesome situations at his plant:

1. Control sludge bulking and sludge rising in the final tanks and decrease operating costs by training plant operators to take dissolved oxygen tests every two hours and run the blowers accordingly; by controlling the suspended solids and detention period in the aerators; and by increasing the sludge pumping capacity.

2. Cut the cost of operating the primary clarifiers and at the same time improve the quality of the sludge withdrawn from them by controlling their operation and the operation of the sludge pumps by time clocks.

3. Increase primary digester heating capacity and operate the primary and secondary digesters in such a way as to insure that all sludge was being thoroughly digested.

4. Provide for the return of filtrate and of good supernatant to aerators instead of to the primary clarifiers, thus lessening the load on the clarifiers.

As a result of these steps, the plant now consistently produces an effluent that is clear and sparkling with the average suspended solids and 5-day BOD reduced to 6-10 ppm despite inflowing sewage with characteristics varying from 73 to 814 ppm.

Worcester Builds Its Own Airport Without Federal Aid

By GEORGE E. COMSTOCK
Councilman
Member Joint Standing Committee
on Airports

WORCESTER, Mass., which is 45 miles west of Boston and has a population of 193,402, is rapidly completing its new two-million dollar municipal airport, financed solely through municipal funds. No aid has been sought or is contemplated from the federal treasury or any other outside source.

After many years of debate on the selection of a site, Worcester officials finally selected what is known as the "Battery B" location on the west side of the city. Captain Le Roy Odell, airport consultant of New York City, was engaged to assist in the final choice. Occupying an elevation of over 1,000 feet, the new airport covers exactly one square mile. The municipality has acquired ownership and clear title to all of the land involved, either through direct negotiation and outright purchase or through the courts by right of eminent domain under the direction of City Solicitor Walter D. Allen.

Notices for bids to contractors were first published early in 1944. All bids were opened in public, and the contract for the rough grading and preparation of the runways was awarded to Worthington, Inc., of Quincy, Mass., the lowest bidders. Construction actually began on April 27, 1944.

The grading, construction, and preparation of the runways represents an outstanding feat in engineering by Commissioner of Public Works Herbert Green and City Engineer Earl R. Perry. A painstaking survey was made to determine the sections easiest to excavate avoiding any large ledge formations as far as possible. This early work necessitated the removal of 1,200,000 cubic yards of earth and only 80,000 yards of ledge.

Three runways, 5,500 feet, 3,900 feet, and 3,750 feet respectively, were completed and dedicated in the fall of 1945. Experts claim that these runways will accommodate the largest planes and up to 400 planes daily if the air age should produce that amount of traffic.

Each runway is 500 feet wide including the paved strip of 150 feet in width. Each consists of 14 inches of gravel, the top 5 inches of which was mixed in place with tar. On top of this foundation there is a hot-mix 4-inch bituminous concrete surface. This material was supplied from city owned plants. At the beginning, the runways were allowed to settle for six months following grading.

In order to keep the runways free from water and slush, considerable study was given to the final drainage plans by Engineer Perry. As a result, there are 150 drop inlets and 4½ miles of drainage pipe serving the port for drainage purposes.

The Administration Building

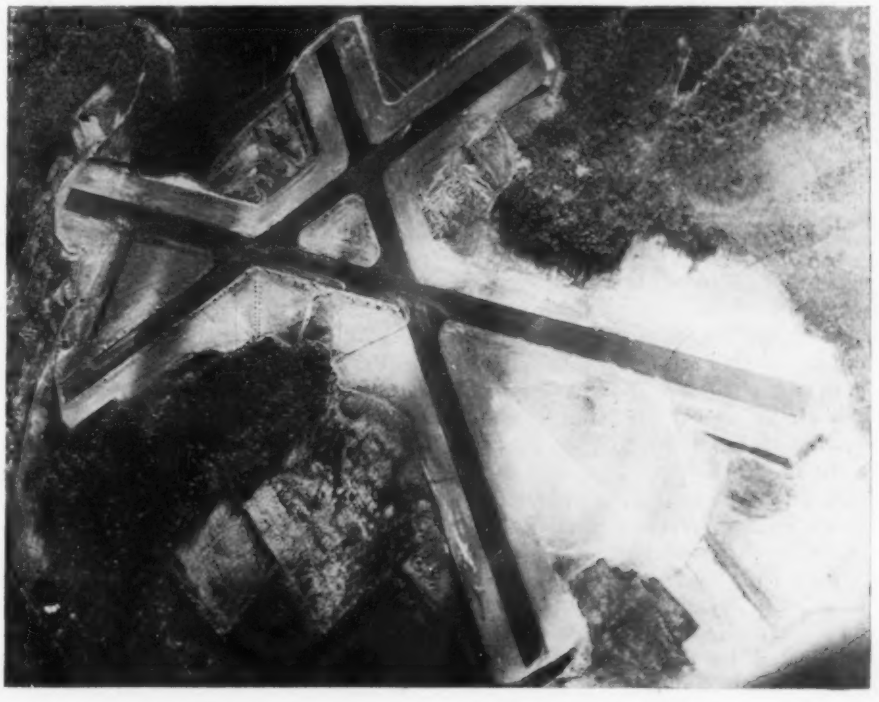
Ground will be broken early this spring for the administration building. The structure will be approximately 150 feet by 50 feet with provisions for expansion should traffic make this necessary. The building will be surmounted by a high control tower and the first floor will contain air-line administration and ticket offices, an ample cafeteria and snack bar, check rooms, and other concessions. The waiting room will be spacious to avoid crowding.

The second floor will feature a large, modern restaurant and cocktail lounge with a seating capacity of over 200. It will be available for private parties and banquets. With the imposing view afforded by the elevation it is expected that this will become a popular rendezvous and contribute to a large degree in making the city and countryside air conscious.

Also on the second floor will be the CAA offices, weather bureau, and airport manager's offices. The basement will contain service rooms, heating equipment, and electrical controls.

The administration building will be approximately 750 feet from the main instrument runway. Directly in front of the building will be the loading area, paved with reinforced concrete. Space for future development and areas for loading cargo planes will be reserved in an area just to the west. About 2,000 feet to the east, a large space has been reserved for private flying, which will receive every encouragement. An area 3,000 feet in diameter has been set aside for parking, warehouses, and repair stations. Separate hangar facilities will be provided for private flyers at fixed monthly rentals.

The total estimated cost is $1,782,018, all of which has been obtained through municipal bond issues at extremely low rates due to the sound condition of Worcester finances. Of the total, $1,107,018 was ear-marked for grading, oiling, drainage, top surfacing, seeding, etc. A minimum of $75,000 has been allotted for the ad-



An airplane view of the Worcester, Mass., airport.

ministration building; $75,000 for hangars; $400,000 for taxiways, loading areas, parking space, and roadways; $25,000 for lighting; and $5,000 for a radio beacon. The municipal government will appropriate whatever additional sums may be necessary for additions and improvements.

In September 1945, the Airport Committee appointed Public Works Commissioner Green as temporary manager. The CAA approved the Northeast Airlines, Inc., for several scheduled commercial flights daily. With the completion of the runways in November, this service was expected to begin, but the officials of the airlines stated they were unable to obtain the additional planes necessary. It is probable that regular commercial service will not start until well into the summer of 1946.

The Airport Committee approved the airport for charter service and the field has been designated by state and federal officials. Several local flying companies are providing this service for anyone who wishes to make emergency trips. It is hoped that the CAA will approve several large airline companies so that service will be ample.

Two Plans for Management

No decision has yet been reached by the Airport Committee and the City Council as to the type of management it will provide for this model municipal airport. Some persons in the city government desire to keep control of the airport within the committee. They argue that city government has delegated too much of its authority to commissions and boards of trustees, and that this power should be kept within the council.

The alternate plan of management was conceived by the author, and is also under consideration by the city of New Bedford, Mass., and other municipalities.

It provides for a separate airport department. By establishing a separate bureau, it is possible to engage the services of a competent airport manager on the basis of merit examination *outside* of civil service. A disabled veteran himself, the author incorporated this clause to bar any inexperienced veteran from taking over the management of the airport through civil service. In Massachusetts, a veteran outranks civilian candidates and a disabled veteran supersedes both. Exclusive control and management is vested in a board of municipal airport commissioners composed of five members nominated by the mayor subject to confirmation by the council. The mayor and the commissioner of public works would serve as members ex-officio without salary or other compensation.

The commissioners would be appointed for terms of five years, with a new appointment yearly, thus insuring at least four experienced members on the board. To keep control out of the hands of a clique, no commissioner would be permitted to serve more than two successive complete terms of five years each.

In selecting an airport manager, the commission would be required to consider only those applicants with a minimum of five years actual experience in the successful management of a municipal or commercial airport. Careful investigation of all applicants is required under the order.

The commission would have full control over all contracts, purchases, and the granting of concessions, with the proviso that the most profitable grants be retained for the benefit of the City of Worcester. All meetings of the body would be conducted openly with members of the press present at all times. Employees other than the airport manager would be selected through civil service.

This plan has the endorsement of every civic leader, the Worcester Chamber of Commerce and the press as well as expert airport consultants. Its primary purpose is to provide a plan of operation completely free from any political control or interference and to preserve the benefits of the airport for the citizens.

Chlorination Terminology

THE complicated and rapidly expanding vocabulary of the water works specialist was concisely summed up recently by A. E. Griffin, Assistant Director, Technical Service Division, Wallace and Tiernan Company, Inc., Newark, N. J., in a talk at the New Jersey Water Works Association meeting. Mr. Griffin dealt specifically with chlorination and asserted that a clear understanding of the terms and methods, old and new, which are used in the process will simplify the procedure to such an extent that results will be predictable.

Technical advances in recent years have not only added terms but have also given new shades of meaning to old terms. *Chlorination,* for example, is an all inclusive term which refers simply to the act of applying chlorine to water. In the over-all term no hint is provided as to how, where, or why the chlorine is being applied in a given plant. Gradually words have been introduced to answer these questions and to "express properly the various niceties of chlorination."

References to the position of chlorination in the plant was one of the first steps in this direction. The standard practice of adding chlorine either at the end, after filtration, or at the beginning, before filtration, has led to such designations as *pre-* and *post-chlorination. Re-chlorination* refers to additional chlorination along the distribution system. *Reservoir chlorination* concerns additional chlorination at the reservoir supplied for a specific purpose.

Super-chlorination is the application of chlorine to water in amounts greater than that required to produce an initial residual. The process is used to combat tastes and odors and the residuals produced are often so great that some form of dechlorination is used. This process is the removal or neutralization of chlorine.

The *chlorine-ammonia* process of water treatment known as chlorination is the addition of chlorine in addition to ammonia to form chloramine residual—chlorine plus nitrogenous compounds.

One of the newest processes to be developed is *break-point chlorination*—the application of chlorine to water to produce and maintain a residual of free available chlorine.

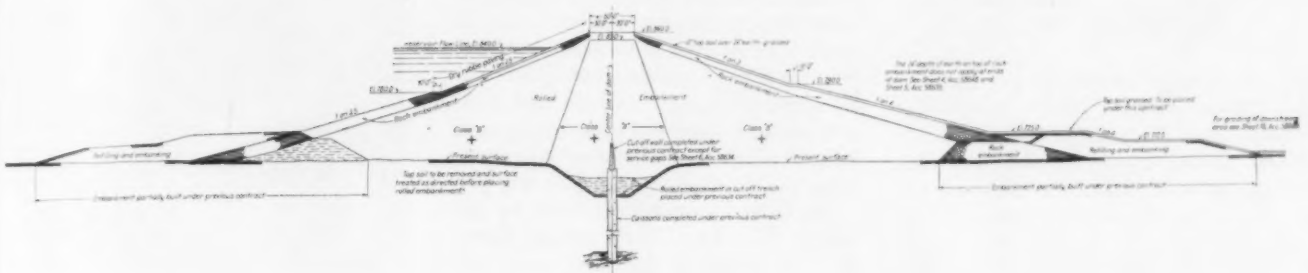
Marginal chlorination is a term created to designate the type of chlorination that is not concerned with the type of residual produced or its persistency. It is defined as the application of chlorine to water to produce an initial residual of either free available chlorine or combined available chlorine. All of the processes described will be discussed in a forthcoming edition of the AWWA Water Works Manual.

An important part of all these processes is the *chlorine residual* produced. The term is all inclusive and means that enough chlorine has been added to produce a yellow color when orthotolidine is added. A refinement of these tests produced many more terms which Mr. Griffin clearly defines. *False residual, free available chlorine residual, combined available chlorine residual, instantaneous residual, flash residual, sub-residual,* and *break-point residual* are all equally important to the vocabulary of the water works man. Mr. Griffin also pointed out that tests for the residual chlorine have added other new terms and methods which should be followed closely.

When all of these tests have been perfected, terms clarified, and new terms understood, the treatment of water will become much simpler than it seems to be, Mr. Griffin indicated.

New York City Accepts Water Bids With Reservations

The contract between the Board of Water Supply and S. A. Healy Co. provides a share-the-profit arrangement on an 80-20% basis in the construction of the Merriman Dam



TYPICAL SECTION

This is a cross section of New York City's Merriman Dam on which construction was interrupted by the war. It is a rolled fill earth structure with an impervious soil core. Officials hope that the terms of the new contract will result in a lower cost of construction.

AFTER previously rejecting bids, New York City's Board of Water Supply accepted the proposal of the S. A. Healy Co., Chicago, Ill., for the construction of the Merriman rolled fill dam and appurtenances, and the Rondout effluent chamber of the Delaware Aqueduct. The S. A. Healy Co. is the same contractor that had previously built portions of the Delaware River aqueduct.

The contractor's bid was the same as one previously offered and rejected. However, the contract carried a supplemental agreement to share with the city any difference between actual cost plus a reasonable profit and the amount the city would pay under the terms of the contract. The Board made the agreement in consideration of an assumption that the contractor included in the bid contingencies to protect himself against possible developments that might occur in the next 45 months insofar as uncertainties in labor and material are concerned. The agreement provides that if the contingencies do not occur the city will receive 80% and the contractor 20% of the amount that they represent.

The Merriman Dam will be of rolled fill construction 200 feet high, 2,500 feet long, and 1,300 feet wide at the point of maximum height, and involves 5,600,000 cubic yards of earth. The fill material is subdivided into class A and class B. Class A constitutes the impervious core in the central portion of the dam and will be rolled to 90% of maximum "Proctor" density at optimum moisture content. Class B is to be rolled thoroughly but has no density specifications. The dam will be faced on the upstream side with stone paving and on the downstream side with topsoil and grass. The top width will be 60 feet. A concrete spillway also is provided, paved with stone.

The Rondout effluent chamber will be a reinforced concrete structure containing valves for the control of flow from the reservoir into the aqueduct tunnel and will also contain other equipment necessary for the operation of the aqueduct.

The contractor's bid for the dam and effluent chamber is estimated at $14,300,000 and their construction is now under way.

The improvement was designed under the direction of Roger W. Armstrong, Chief Engineer, Board of Water Supply for the city of New York. The Board consists of Commissioner I. V. A. Hue, President; Rufus E. McGahen; and Henry Hesterberg.

A view of the Merriman Dam construction of which has recently been resumed.

Information for Citizens of Birmingham, England

THE Information Department of the City of Birmingham, England, has been reopened after having been closed "for the duration." Its activities are twofold: to provide an efficient information service for citizens and others, and to "publicize Birmingham's civic, industrial, cultural, and tourist interests throughout the world," according to an item in the February issue of *The Municipal Review*, the organ of the Association of British Municipal Corporations.

Cutting Up in the Streets

A chain saw that cuts an inch a second enables the East Orange Shade Tree Commission to cut down and remove trees in half an hour

By HARRY E. TURNER
Secretary
Shade Tree Commission
East Orange, N. J.

EAST ORANGE, N. J., population 75,000, has for many years been known as "The City of Beautiful Trees." Along its 160 miles of curbing are 30,000 trees, which, if planted 25 feet apart, would make a forest half a mile wide and over a mile long in the metropolitan area of about four square miles.

The care of these trees is the responsibility of the East Orange Shade Tree Commission, now composed of Thomas Wood, president, A. L. Felsenfeld and Howard B. Voorhees. Since its creation in 1904, the commission has endeavored to make the public conscious of the asset in the shade trees, worth $100 on the average and some $3,000,000 in all.

At the cost of 4/10 cent of the city dollar, we prune roots, fill cavities and take out and replace trees. During 1945 we took out 187 trees and 43 stumps—a normal rate of activity. If done by hand, the work would keep a crew of six men busy most of the time. But, we don't do it entirely by hand. With only a small field force, it is necessary to have time-saving equipment in order to do the daily work and take care of emergency calls coming through the police department. We have just that piece of equipment in a Disston chain saw which we purchased shortly after the hurricane of 1944.

Lessons of the Hurricane

The hurricane taught the city many lessons; possibly chief among them was the need for better measures for clearing the streets of fallen trees. Our first call on that hectic September 13 came at 6:40 p.m. We worked all night and the next morning a vast amount of work still needed attention. At that time our active men were away at war and we had to call on our high schools and junior highs to furnish boys to clear the streets of the more than 400 city-owned and over 600 privately owned trees blown down by the storm. The boys, over 200 of them, got a kick out of the work and East Orange was one of the first cities in the country to clear its streets so that war workers, police cars, fire apparatus, ambulances, and other essential vehicles could get through.

It was after this experience that we learned about the Disston chain saw which cuts through a log at the rate of an inch a second. One has to see it work to understand its ability to get trees cut up in minutes as compared with the hours required by the two-man handsaw. Tight as materials were at the time, Washington approved our request and soon the saw was delivered.

If we had had our saw the week following the hurricane, we might have saved a life. At 11:40 p.m. on September 21, 1944, a large elm fell across the roadway on a passing car, smashing down the top on the driver's head.

The good-sized tree on the truck above was felled and cut up in minutes whereas by ax the job used to take hours.

We had to work with a handsaw 1½ hours, whereas with the chain saw it would have been a matter of seconds, for the chain, traveling at 1,200 to 1,400 feet per minute, saws an 18-inch log in 18 seconds.

With the saw, we have taken down a 12-inch tree, stripped it, cut it into 12-foot lengths and pulled the logs onto a truck, all in 12 minutes. The saw is powered by a 2-cylinder, 2-cycle air-cooled 11 hp Mercury gasoline engine developed primarily for use on a chain saw. It operates all day on 2 gallons and is lubricated by oil used in the gasoline mixture.

In former times we sent the wood of old and diseased trees to a burning

Such a clearing job proceeds swiftly with a power saw.

A nursery of shade trees owned by the city of East Orange, N. J.

pile in the mountains. Now, we cut it up and sell it by the cord to the public at $12 per 24-inch, $13 per 16-inch and $15 per 12-incn. In the past year $2,000 from this source was turned over to the city treasurer.

Trailer for Saw

The chain saw is now as much a part of the Shade Tree Commission as an ax or a truck. We built for it a special trailer which hooks on behind a city car, a truck, or my personal car. The trailer body rests on the front wheels of a Ford which cost us $20. We use the rear wheels of the Ford as the basis of a second trailer for general purpose, and its engine drives a Hardie sprayer, which was formerly mounted on a Ford truck and driven by the motor, tying up the truck the entire year for only two months' use. Saw maintenance consists of an occasional clutch adjustment and not more than half a dozen sharpenings a year at $2 each.

Calls for our saw frequently come from adjacent towns. In one case a poplar, 52 inches at the base, required our going up the trunk 20 feet to get a 3-foot diameter cut. Three cuts were made in less time than two men with a 2-man saw could make one 20-inch cut of a limb. The fire department intends to buy a saw for similar use in emergencies. The Shade Tree Commission expects to buy a Disston chainsaw for cutting off limbs which now requires half an hour and puts a man out of action after six or seven such chores. Incidentally, over half our force of eleven are returned service men.

City Nursery

Three years ago a city-owned nursery was started behind the city yard and 50 pin oaks, Norwegian, and remaples have been planted since. Last year 300 trees were planted on the streets with the loss of only three. To check the spread of the Dutch elm disease, the commission removes the stricken tree from private property. A dozen diseased trees were thus removed last year.

Unit Ledgers for Property Tax Accounting

By ARCH PLANT
Governmental Division
Burroughs Adding Machine Co.
Detroit, Michigan

AN ARTICLE in the October issue of THE AMERICAN CITY, featuring the unit tax ledger installation of the city of Austin, Texas, has prompted inquiry as to progress toward more universal adoption of this modern form of tax record. The chart shows the states in which one or more governmental units have adopted ledgers to supplement or replace the conventional form of roll. This refers to ad valorem taxes, although special assessments are sometimes handled through the same records.

It will be noted that in the east taxes are collected by cities and towns; except in New England and New Jersey, counties also collect property taxes. In most of the southern states, both counties and cities collect. In the midwestern and western states, the taxes collected by counties include the levy for cities, towns, and school districts within the county.

Except in two or three states, cities that collect property taxes are not restricted by state laws as to the form of their records. This accounts for the fact that the use of unit ledgers is more generally accepted by cities than by counties. Counties are legally restricted in several ways; state laws may prescribe the form of records required, the columns that are to be posted, and forms may be issued to the counties by the state tax department. The Indiana legislature removed such restrictions several years ago. Early in 1945 legislation was enacted in Arkansas and Nebraska to permit the use of ledgers instead of tax rolls. Of course, in many states, present laws are sufficiently flexible to permit use of unit records.

There is nothing wrong from an accounting standpoint with a properly designed tax roll, which is similar to the register sheet plan of accounts used by some public utilities. There are some cases where the use of a ledger for current tax accounts does not fit local conditions and might increase operating cost more than is justified. The value of a continuous ledger for personal taxes is questionable; there are so many changes in the personal tax list from year to year that it is usually better to use a copy of the bill as a unit ledger or to post credits to a tax roll. If the roll form is used for real estate, a delinquent ledger should be maintained to centralize all items delinquent against the same property.

WHERE UNIT PROPERTY TAX LEDGERS ARE USED

STATE	PROPERTY TAXES COLLECTED BY		UNIT TAX LEDGERS USED BY	
	COUNTIES	CITIES	COUNTY	CITY
Alabama	x	x	x	x
Arkansas	x		x	
Connecticut		x		x
District of Columbia		x		x
Florida	x	x		x
Georgia	x	x		x
Indiana	x		x	
* Iowa	x		x	
* Kansas	x		x	
Maine		x		x
Nebraska	x		x	
New Jersey		x		x
* New Mexico	x		x	
New York	x	x		x
No Carolina	x	x		x
Ohio	x		x	
Oregon	x		x	
Pennsylvania	x	x		x
* Tennessee	x	x		x
Texas	x	x		x
Utah	x		x	
Washington	x		x	

* Ledgers authorized but not yet in use.

States using unit property tax ledgers.

The advantages claimed for the unit ledger can best be realized when the tax accounting procedure can be adjusted to provide the following conditions:

a. Unit form of assessed valuation record, supported by a unit field record kept up-to-date as changes in valuation are authorized, and controlled by predetermined total valuations for districts or other geographic areas.

b. Tax records completed mechanically by a bill and ledger operations direct from the unit valuation cards, without the use of intermediate records.

c. Acceptance of a register sheet without names and property descriptions as a medium for certification of tax levy and audit. Individual items may be keyed to the ledger record by item numbers printed on both records; using a tax accounting machine, the register sheet is printed and accumulated automatically during the bill and ledger operation.

d. Acceptance of the tax ledger as a record of delinquent taxes, as indicated by items that have not been liquidated by credit entries.

With respect to old laws that unnecessarily restrict the form of tax records, there is usually no opposition to changing such laws if the changes are sponsored by forward thinking public officials. Changing the law would not remove the state's control over accounting procedure in counties, however, since authority for approval of county systems would be vested in an appropriate state department.

In the July 1945 issue of this magazine the authorization of the use of the unit tax ledger system by Arkansas was described. The General Assembly of the state agreed that the installation of the system would result in great savings of money, labor, and material to the counties adopting it.

The Park Arboretum as a Living War Memorial

By DONALD WYMAN
Arnold Arboretum of Harvard University

View of the Arnold Arboretum. LEFT: *Syringa. Lilac Collection.* RIGHT: *Kalmia latifolia.*

SINCE the war has ended, there has arisen in many communities throughout the country a desire to erect some kind of war memorial. A "living" war memorial, which will bring beauty, pleasure, recreation, and a certain amount of education to the people in the community over a long period of years, will undoubtedly have first consideration in many places. This may eventually be expressed as a park, a street or highway planting, a cemetery development, or in very small communities some public municipal planting, so that in many areas the "park arboretum" should be given consideration.

Growing Interest in Good Plants

The American home owner is becoming more and more conscious of the fact that plants—good plants—molded into a pleasing design about his house, will give him and his friends considerable pleasure, and will add materially to the selling value of his real estate. Garden clubs, civic organizations, the Scout movement, and even our schools are all helping to educate the people to desire good planting. Consequently, there is an increasing desire on the part of home owners to learn more about good plants, to buy them and to use them properly in planting plans. Many communities are finding this desire for better planting is a potent force in the community and certainly now is an ideal time to capitalize on this urge for the betterment of the community as a whole and the individual land owners in particular.

A park arboretum is an ample area set aside for the growing and effective display of all the different kinds of worthy ornamental trees, shrubs, and vines which can be grown out of doors in a given area, their maintenance and proper labeling. It does not necessarily have to include *all* the woody plants that can be grown out of doors in a region, nor does it necessarily have to include beds of annuals and perennials which are always expensive to maintain, or large display greenhouses filled with exotic materials which will not live out of doors in the winter. But it should include the *best* of the woody plants which it is possible to grow in that region and they should be kept accurately labeled at all times. The park arboretum goes one step further than the public park, for its chief purpose is to educate the people into knowing the best plant materials, how they should be grown, and how they can be used, as well as to serve as a suitable place for relaxation and recreation.

Suitable for Small Communities

The park arboretum is adaptable to smaller communities than Boston, St. Louis, Seattle, and Milwaukee. It is based on the concept that there are new and better varieties of plants becoming available from time to time, that the public is continually interested in them, as they are in new hats, or cars, or refrigeratoin devices, and that the community which is trying to beautify its public and private grounds with intelligent planting, is a much better place in which to live.

Functions of a Park Arboretum

The functions of a park arboretum in a large or a small community are the same. Chief among them would be:

1. To grow "the best" woody plants hardy in the area in order that home owners may become acquainted with their names, their ornamental characteristics and the proper methods of culture.
2. To show a *complete selection* of all that is considered the best from an ornamental standpoint among the woody plants that it is possible to be grown in the area.
3. To serve as a means of *introducing* new woody plants into the area, regardless of the source from which they may come.
4. To disseminate a knowledge of woody plants to the public. This would include information on culture, pruning, fertilizing and possibly a continual study under local conditions of just what varieties are "the best," including even cooperation with schools, garden clubs, and other organizations.
5. To test the hardiness of untried varieties.
6. To provide an out of doors laboratory for students of botany, horticulture and nature study.
7. To increase the productivity, economic importance and beauty of an area, by intelligent and interesting planting, and by introducing plants not grown there before.
8. To provide recreational stimulus to the public by means of walks, drives and beautiful displays, and to stimulate the pleasure of learning to know new plants which might be adapted to planting on private property.
9. To serve as a permanent "living war

(*Continued on page* 123)

Building Codes, Building Costs, and Building Safety

What's wrong with building codes—and what can be done about it

By MILES L. COLEAN

TO PROTECT safety and health properly, and to allow for the maximum efficiency and economy that the construction industry can provide, are—or should be—the objectives of the building code of every municipality.

In too many codes methods of construction which might reduce costs and speed up building operations are banned from use, and wasteful amounts of materials are required, thus exacting an unnecessary toll from the construction industry and imposing needless costs on the owners of buildings.

The difficulties of getting a satisfactory code for any city may be grouped into six main problems:

I. What Should a Building Code Cover?

Communities vary greatly in the number and type of conditions they find it desirable to regulate. A small residential community may be satisfied to limit its requirements to a few precautions against fire and unsanitary plumbing, the strength of buildings, and the avoidance of danger due to tortuous stairs.

In a densely built city, on the other hand, the crowding of population creates numerous other matters for regulation. Fire precautions must be more elaborate and more detailed. High buildings bring their special problems. Sanitary requirements become more vital and, in crowded tenements, become involved with public morals as well as public health. Factories, office buildings, theaters, schools, commercial buildings, all come in for special attention.

Where is the code to stop? The coverage of a code is partly a matter of necessity, and partly one of practicability. Better buildings cannot be made or people's lives improved simply by writing laws. For instance, one of the most difficult problems in the drafting of building codes is where to draw the line between unattainable perfection and dangerous jerry-building. If a building code were to require fireproof construction for all single-family houses, fewer houses would burn down—but still fewer would be built, overcrowding would increase, and shelter would absorb an unjustifiably high percentage of family incomes.

The community must know its own problems and know what it is capable of achieving. It must decide both what is essential and what is feasible and then write building laws to cover the fundamentals of safety and health agreed upon. The community must then support these standards and be willing to pay for their strict enforcement.

II. The Problem of Scientific Standards

Engineering standards cover such matters as the necessary safe strength of wood, steel, or reenforced concrete in floors, walls, columns, etc.; the required thickness of walls; the degree of fire resistance necessary in buildings of different types; the amount of light and ventilation in rooms to prevent hazard to health; the size and arrangement of pipes to insure a sanitary plumbing job.

This list could be greatly extended, but it should be sufficient to show that the preparation of a building code is not a simple nor an inexpensive task. The burden usually falls on the individual community, and few are able either to undertake it in a thorough or competent manner or to make frequent enough revisions to keep the codes in line with the best current engineering practice.

There is no one place from which a municipality can get complete information backed by tests of undisputable authority.

For certain well-known building materials like steel, reenforced concrete, lumber, and brick, authoritative information is available from organizations such as those listed at the end of this article. The recommendations of these organizations may be embodied in the code by reference rather than by copying them word for word. In one code, picked at random, there are forty such references, representing the recommendations of eleven separate organizations.

There are, however, many materials and methods not so authoritatively covered, leaving frequent questions of judgment to resolve. Take fire resistance as an example. Since there is probably no such thing as complete fireproofness in a building, there is plenty of room for judgment as to how near the ideal we can afford to go, from an economic point of view; and how far from it, from the point of view of reasonable safety standards, we can afford to depart. What, for another instance, is a proper minimum room size, or a minimum ceiling height, or window size? Standards for this type of requirement are more difficult than for a material or a standard method that can be approved through precise engineering tests.

Yet such standards can be devised. They were devised, for instance, in the controversial question of building exits, through the exhaustive studies of the National Bureau of Standards. Other questions could be similarly settled if the funds and facilities were available. But they generally are not; and each separate code authority is forced to do the best it can.

Because of the absence of commonly accepted standards and the means of establishing them, the way is often opened to the outright perversion of the building code in the interest of certain manufacturers or of labor and subcontractor groups. Sensational cases of this sort provide fruitful material for magazine articles. They give an opportunity to zealots, some of whom seem willing to discredit building codes altogether. Actually the question these cases raise is less one of moral turpitude than of a lack of basic standards, objectively derived. The corruption of codes, along with the burden of cost that it imposes on the community, is a by-product of this lack and feeds on it.

III. The Problem of Non-Uniformity

The wide divergence of building code requirements from one city to another, even among neighboring cities, is a constant cause of annoyance, confusion, and expense to designers,

The suggestions offered in this article are part of a thirty-page report on a study made by the author for the National Committee on Housing. The report, entitled "Your Building Code," has just been published and copies can be secured from the Committee's headquarters at 512 Fifth Avenue, New York 18, N. Y. (See page 145 of this issue).

builders, and manufacturers—and the result once more is added cost to the public, as well as a very unequal degree of protection.

Plainly some measure of variation is justifiable. Northern cities must provide for snow loads not met with in the South. Regions subjected to hurricane or tornado or earthquake must make special provision against these local hazards. Large, closely packed cities have a greater problem in fire and health protection than small ones.

Such areas of divergence, however, are easily recognized and the special provisions needed are readily segregated. But the strength of steel, or concrete, wood, or brick of a given quality, does not vary between Maine and California, nor do the ordinary loads that floors and walls have to carry. Yet allowable working stresses in concrete, for instance, vary from 500 to 1,000 pounds per square inch; minimum thicknesses of brick basement walls from 8 to 16 inches for the same height and load; and live load requirements for dwellings from 25 to 80 pounds per square foot.

Aside from variations in the reaction of water on piping, a safe, sanitary, and workable plumbing system is not affected by climate or location. Yet an analysis of a random selection of codes studied in connection with the conservation of materials during the war, showed that the city requiring the lowest amount of pipe (by size and weight) in a one-story house, saved 30% of the total amount of cast iron required by the city with the maximum requirements. The minimum code in the sample saved 20% under the maximum of metals other than cast iron.

Minimum permitted floor areas for the same type of room vary from 60 to 120 square feet and ceiling heights from 7 to 9 feet. The proper thickness for wallboard as a plaster substitute should not be a subject of dispute, yet one large city requires a thickness that rules out the use of wallboards as commonly manufactured. There are many such examples.

Such conditions point directly to the need for some means of harmonizing code policies, particularly among adjacent communities. This movement is held back for lack of some central facility, removed from local pressures, to which code makers might go for unbiased information and judgment.

IV. The Problem of Multiple Jurisdiction

Another, but hardly less serious, kind of jurisdictional problem exists within the separate cities.

Fire prevention, sanitary requirements, boiler installation, and electrical work may be separated from the general building requirements. Zoning ordinances and land planning regulations are almost always treated separately. Police, highway, and health legislation may impose restrictions on the construction and operation of buildings. Yet there is a great deal of unavoidable relationship among these legislative segments.

Even where basic conflict may not exist, the task of going through the complex and uncoordinated procedures resulting from mixed jurisdiction may be both onerous and expensive. The builder may first have to take his plan to the building department. Then he may be required to have his plumbing design scrutinized by the health department and his wiring by the electrical bureau. The boiler inspector may do his checking separately and the first department review the exits, stairs, and standpipes. The builder may then need to get a police permit to cross the sidewalk with his materials or to build temporary obstructions, a permit from the highway official to cut the curb for permanent access, and one from the water department for temporary and permanent service. In addition, the zoning board and perhaps the planning commission may have to be satisfied, especially if any variation from set requirements is involved.

Such interviews usually must be made in sequence and an upset in one place may necessitate a fresh start. Each permit means a fee paid, but the cost of fees is negligible compared to the cost of the time and uncertainty involved. This ridiculous procedure is one of the simplest code problems to solve, yet it continues to be a source of excess cost in many cities.

Although it is not essential to include all legislation affecting building in a single ordinance, some means for correlating and codifying all such legislation can be adopted; and all related ordinances can be published as parts of one document. Moreover, it is practicable to save the builder from the merry-go-round described by unifying the administration of the separate pieces of legislation. In some cities this has been done, to the great improvement of administration and the diminution of the builder's woes.

V. The Problem of Legal Rigidity

For a long time advocates of code reform have urged regulation in accordance with "performance standards" rather than by detailed specification. Under such standards, for instance, the required strength of a wall or column for a given purpose is stated but not the specific amount of a given material; and the duration of first resistance is stated but not the type and thickness of the fireproofing material. Acceptance of specific materials is left to the building department subject to their meeting required tests.

The performance basis simplifies the task of keeping codes up-to-date and makes easier the introduction of new materials and methods. But the old problem of standards and tests raises its head again. The lack of performance standards results in writing codes in the form of detailed specification for the thickness of walls made of specifically listed materials, for the amount of fireproofing, again for definite materials prescribed, and so on.

VI. Inspection and Enforcement

The personnel problem has been and continues to be serious. While many cities have recognized the importance of an adequately staffed and adequately paid building department, incompetence and weakness is still widespread.

Even with the best personnel, however, the task of properly enforcing a complex, conflicting, out-dated system of building legislation is almost insurmountable. Efforts to make the code specific result in an inflexible instrument for meeting the changes required by a dynamic industry; while the complexity of the specification method with its hit-or-miss amendments, inevitably introduces ambiguities.

Consequently, many codes cannot be completely complied with. The conscientious building inspector in such cases faces an impossible situation. Formal amendment may be long and cumbersome and beyond his power to affect. If he attempts to apply the code rigidly, he not only may cause hardship but may run into irreconcilable inconsistencies. If he tries to apply reason, he may be acting beyond his authority and opening himself to charges of favoritism or worse. To the unscrupulous inspector, on the other hand, the typical code provides ample opportunity for harassment and extortion.

Aids Now Available

Obviously, it is not possible to create overnight all the facilities, make all the tests, and form all the judgments necessary for a thorough-going renovation of building codes. All this will take time.

There is, however, a great deal that can be accomplished now.

Sound recommendations are already

available for:

1. The best methods of arranging and presenting the material to be covered by the code
2. Organization of the building department and the inspecting services
3. So-called "performance" requirements for fire protection and for many parts of the structure
4. Authoritative standards for most of the important materials
5. Methods of providing amendments to keep the code up-to-date and particularly for taking advantage of improvements or desirable innovations in materials and methods as they are presented.

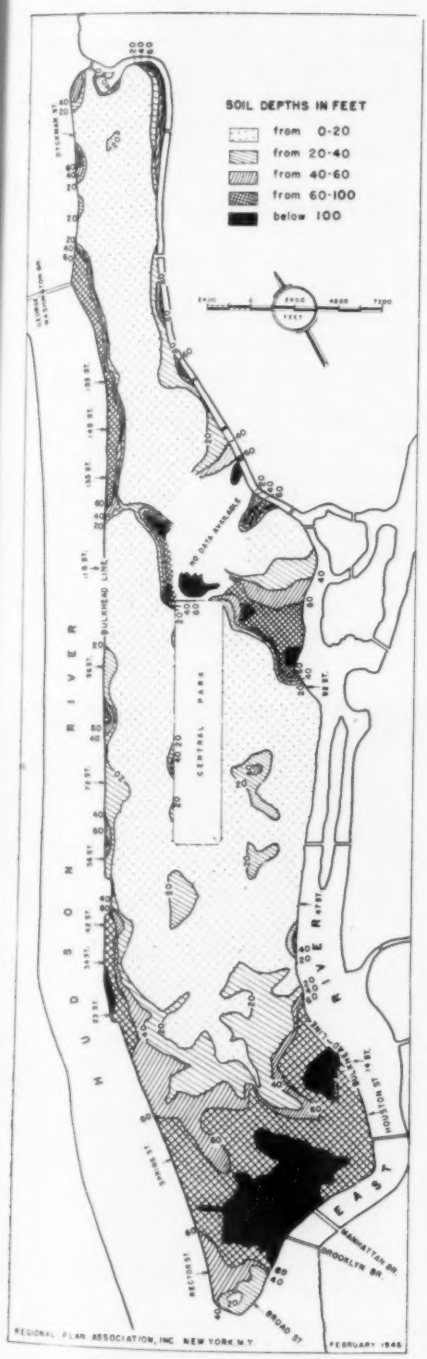
Organizations and agencies which have conducted studies and published reports that will help to start your codes on the right track include:

American Concrete Institute, 7400 2nd Blvd., Detroit, Mich.
American Society for Testing Materials, 260 So. Broad St., Philadelphia, Pa.
American Standards Association, 70 East 45th Street, New York, N. Y.
Building Officials Conference of America, West Hartford, Conn.
National Board of Fire Underwriters, 85 John Street, New York, N. Y.
National Bureau of Standards of the U. S. Department of Commerce, Washington, D. C.
Pacific Coast Building Officials Conference, 124 West 4th St., Los Angeles 13, Calif.*
Underwriters' Laboratories, Inc., 207 East Ohio St., Chicago, Ill.

State-wide building codes, where such exist (as in Wisconsin, Ohio, and Indiana) and regulations covering certain types of construction which have been promulgated in several other states, should obviously be used to the best advantage. Combined with testing facilities in the state universities, state codes would contribute to progress and standardization in the local construction industry and hence to lower costs. The existence of a state code need not, of course, preclude special local requirements where these are plainly necessary.

* The 1946 edition of the *Uniform Building Code* of the Pacific Coast Building Officials Conference in reviewed on page 145 of this issue.

Foundation Conditions Mapped



FOUNDATION CONDITIONS
BOROUGH OF MANHATTAN
AS INDICATED BY DEPTH OF SOIL TO BED ROCK

COMPLETION of a new type of map, designed to assist in planning the future development of Manhattan Island, was announced on March 15 by the Regional Plan Association through the chairman of its Committee on Urban Redevelopment, Earl B. Schwulst, executive vice-president of the Bowery Savings Bank.

This map, here reproduced, which indicates soil depths above bed rock, is expected to prove a valuable aid in the location of new skyscrapers or business centers, large scale residential development, or public improvements requiring substantial foundations or underground space. The map shows where foundations would be comparatively simple for the largest buildings and where soil is so deep that it would not be economical to erect buildings requiring foundations that reach down to bed rock.

As will be seen, the map divides the island into five types of areas according to depths of soil—by twenty-foot intervals to sixty feet, then between sixty and a hundred feet, and finally into areas where soil is more than a hundred feet deep. It shows 10.5 square miles of zero to twenty-foot depths out of Manhattan's 22-square-mile-area.

The Regional Plan Association's technical staff, of which C. Earl Morrow is chief planning engineer, prepared the map for the Urban Redevelopment Committee from sources at the Borough President's office and the U. S. Geological Survey.

The citizen committee, working under the general executive direction of C. McKim Norton, executive vice-president, and Frederick P. Clark, planning director, includes besides Mr. Schwulst, Harold S. Buttenheim, Harvey Wiley Corbett, Thomas Crimmins, Robert W. Dowling, George Gove, Thomas S. Holden, August Ihlefeld, Sterling Pierson, Louis H. Pink, and John S. Sinclair; with George McAneny, chairman of the board, and Paul Windels, president exofficio.

HERBERT KIMBALL SAXE
1868-1946

IN THE passing of Herbert K. Saxe, on March 12, THE AMERICAN CITY has lost a highly respected member of its official family who had occupied an important post on this magazine for a third of a century.

Born in Bloomfield, N. J., May 29, 1868, Herbert Saxe spent his boyhood in Stamford, Conn. In 1883 his parents moved to Madison, N. J., where he made his permanent home. For sixty years he commuted daily to New York, first as a student at New York University, from which he was graduated in 1890; and then to his business office which, since 1912, has been that of treasurer of THE AMERICAN CITY. In more recent years Mr. Saxe also held a similar post on two other magazines affiliated with THE AMERICAN CITY—the *Contractors' and Engineers' Monthly* and *The School Executive*.

In addition to his publishing interests, Mr. Saxe was prominent in the Methodist Church. For over fifty years he served continuously as secretary and later as president of the Board of Trustees of the First Methodist Church of Madison.

Mr. Saxe enjoyed a long and happy married life. Evelyn Fisher, whom he married in 1898, died last June. Surviving are a son, Rev. Ralph G. Saxe, of Dumont, N. J., and a daughter, Mrs. Benjamin F. Caton, of Binghamton, N. Y.

Reading, Pa., Reclaims Garbage and Lowers Disposal Costs

Officials don't make a "silk purse out of a sow's ear," but they do make soap, glycerine, and fertilizer out of garbage and thereby cut the cost of garbage collection and disposal to $1.30 per ton or 18 cents per capita

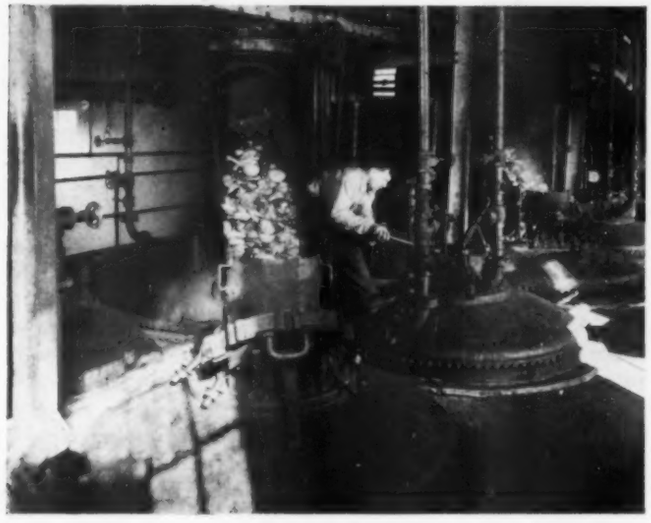
FOR SEVERAL years Reading, Pa., has been reducing the cost of its garbage and refuse disposal program by a resourceful reclamation program that processes the garbage, turning it into grease and tankage. This program reduces by approximately 70% the cost of garbage collection.

Reading has a population of 110,468 and covers an area of ten square miles. The department of public safety, which is charged with the responsibility of garbage and refuse collection, divides the city into two parts and makes collections in each three times a week. This puts the collection crews on a six-day-week schedule in order to cover the entire city. The crews work every night except Saturday, starting at 9 p.m. in winter and 10 p.m. in summer. Four crews make the garbage collection; each crew consists of a driver and two helpers. The collections will average 36 tons of garbage per night, although in summer, because of fresh vegetable shells and corn husks, this figure will go to 66 tons per night.

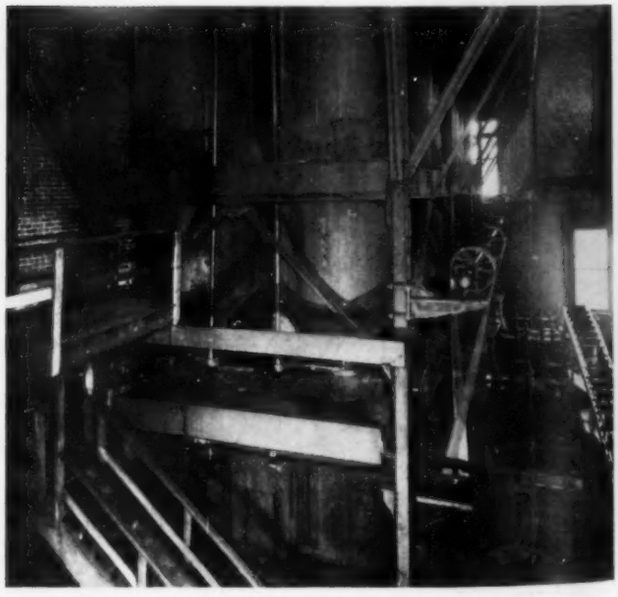
How the Processing Program Works

To process this garbage, the crews first dump the truck contents into underground pits at the reduction plant. Here a conveyor belt directs the garbage to twelve digesters that cook it for three hours under 90 pounds of live steam. The grease and water are thus separated from the solid portion of the garbage and drawn off into a series of vats where that portion of the grease that can be separated by flotation is drawn off. The residue, a wet powder used as a filler for fertilizer, goes through presses into driers and then through a series of screens to take out rubbish such as rags, paper.

Underground pits receive the garbage from the collection trucks each day. Pitmen move the refuse to the conveyor shown in the rear of the picture.



The conveyor brings the garbage to the second floor of the plant and through a chute to the digesters. The digesters hold about 6½ tons each of the raw garbage. The Reading plant has twelve. The workman in the picture is sealing one of the digesters. After sealing, the garbage is cooked for three hours in winter and 3½ in summer with ninety pounds of live steam.



After being cooked, the garbage drops through the eighteen-foot high digesters into the receiving tanks shown in the lower center of the picture. From these the garbage is carried on an endless apron through pressing rolls that press out the grease and water. There are three machine presses and each tank of garbage takes about one hour to be pressed.

The finished residue needs no further processing to be marketable. The city sells it through a broker under a year-to-year contract. The grease, however, is stored in heated tanks to remove excess moisture and then transferred to storage tanks until there is enough to fill a tank car. It also is sold under a year-to-year contract.

From Garbage to Glycerine

The garbage grease turns into a number of interesting by-products; 95% goes into the manufacture of soap, in the process of which glycerine is produced which the soap companies sell to the government. Part of the grease finds use in the manufacture of stearic acid used in sperm candles. The remainder is refined into a fine lubricating oil with the final end product being made into a heavy roof pitch. Every bit of the grease is thus used in some way or another.

Costs

Costs covering the operation of the garbage disposal plant have been itemized by the foreman of the plant in a recent report shown in the accompanying table.

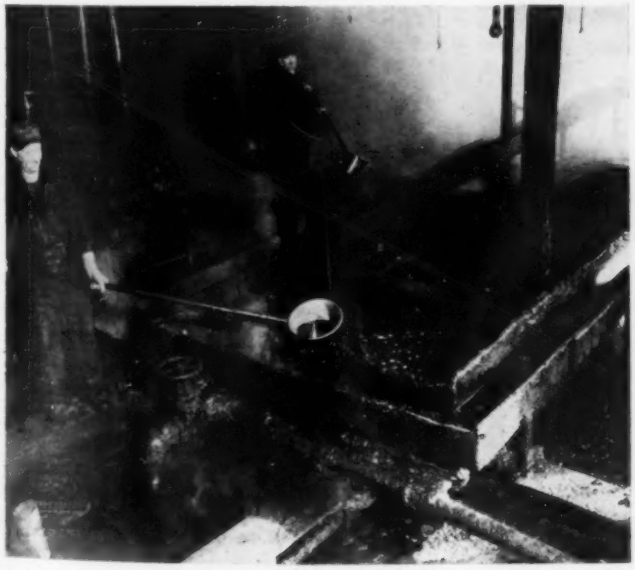
A significant point brought out by this tabulation of costs is the low per capita cost of refuse collection and disposal. The $1.30 per ton figure compares favorably with the cost of disposal alone in many cities where the garbage is reduced by incineration, although collection figures are not separated from disposal costs. If they were, the plant would show a comfortable profit.

The building which now houses the garbage disposal plant was acquired by the city of Reading in 1922 when the city took over the collection of garbage and refuse. The building was remodeled and several additions to the plant have been made since that time. The work is under the direction of Charles M. Stoner, Director of the Department of Public Safety.

ANALYSIS OF COSTS OF GARBAGE COLLECTION AND DISPOSAL

Total cost of collection and disposal		$67,988.04
Revenue from sale of by-products:		
Grease (607,600 lbs.)	$41,515.21	
Tankage (741.74 tons)	6,127.00	48,052.21
Net cost		$19,052.21
Cost per ton collected		$1.30
Per capita cost (110,568—1940 census)		$.18
Garbage collected (tons)		15,263.5
Number of dead animals collected		5,059
Grease sold (lbs.)		607,600
Tankage sold (tons)		741.74
Grease made (lbs.)		589,288

The grease, after having been held in heated storage tanks for four weeks to remove the moisture, is piped to a waiting grease tank for shipment.



This illustration shows the center series of seven vats into which the grease and water from the machine presses flows. A baffle separates one vat from the next. The grease rises to the top and the baffles hold the grease as it rises to the surface. The men skim the grease back into the troughs bordering the vats. The grease then runs back to the first vat where it is pumped into the storage tanks.

The wet solids leave the machine presses and are conveyed to a drying room. After being dried, the tankage is conveyed onto a screen which removes all rubbish such as rags, paper, tin, cans. The tankage then proceeds by way of an elevator to a second screen of fine mesh. After being screened here, it drops onto a fourth conveyor and returns to the floor. Tankage thus processed is used for a filler in fertilizer.

Savannah Housing Authority Builds 3,945 New Dwellings in Eight Years

Tourists on U. S. 17 can hardly believe their eyes when travelling through what used to be Savannah's worst slum area. Here, on the same street, are living examples of "before" and "after"—on one side (above) the remnants of miserable ramshackle cabins, on the other (below) a low-rent housing project, built by the Housing Authority of Savannah, Ga.

THE HOUSING AUTHORITY of Savannah, Ga., has just issued its first progress report, entitled "Oglethorpe Was Right . . . a tale of two centuries." (Oglethorpe is Gen. James E. Oglethorpe, British reformer, who planned Savannah way back in 1733 when the first colonists settled there.) The General fortunately did not live to see Savannah grow from a town of open spaces and a density of ten families to the square mile into a community 48.5% of whose houses were stamped "substandard" by the Real Property Survey in 1939. Only 2% of these were rated substandard for overcrowding alone; 98% had major physical defects; 19% were both defective and overcrowded. One-fourth of the tenants in slum dwellings earned under $8 a week, one-half earned less than $12, three-fourths earned less than $16, and 86% less than $20. That's why they had to live without bathtubs, without modern toilets, and without a sound roof over their heads.

In 1938 the city of Savannah established the Housing Authority of Savannah under the pressure of fifty leading citizens. The Housing Authority was created so that families making about $15 a week or less could live in decent homes at rents within their means. The first act of this newly constituted authority was to build on a site of largely undeveloped land 176 homes which were used to accommodate some of the families of Yamacraw district, the city's worst slum and the first to be completely eradicated under the new program. Other projects followed. They fall into three groups: low-rent housing, defense housing, and war housing.

The extensively illustrated brochure just issued by the Housing Authority on its work includes also a complete breakdown of the financial venture involved. It points out that houses are subsidized by both local and federal government, that money for the construction was borrowed at low interest rates, that the taxpayers don't lose anything, and that nobody makes a profit, while the whole community benefits from the results.

The effect of the new housing developments on the life of Savannah has been a notable one indeed. The housing projects put great stress on community life and community activities. Nursery schools to take care of the children of working parents have been set up; community houses to provide recreation for young and old, clubs and playgrounds have contributed to a marked decrease in juvenile delinquency and a corresponding esprit de corps among the residents of the newly-constituted settlements.

The booklet notes "so far so good," but much still remains to be done. Many houses have become substandard in the meanwhile, and 13,384 families are still living in slums. The Housing Authority of Savannah has already asked the Federal Public Housing Authority to earmark a loan for 1,680 low-rent units to be built as soon as materials become available. These would take care of 17.3% of the low-income families. Good homes and razing of the slums, the booklet states, are the first post-war objectives of the Housing Authority of Savannah.

National Home Demonstration Week

NATIONAL Home Demonstration Week will be observed this year, May 5 to 12. Its theme will be "Today's Home Builds Tomorrow's World," and its purpose will be to focus attention on the contribution of home and family to progress and world peace. Through meetings, exhibits, tours, and radio programs, rural women in cooperation with home demonstration agents of the Extension Service of the Department of Agriculture and of each of the 51 land-grant colleges will show the possibilities that home demonstration work offers and encourage wider participation.

Union's Semi-Permanent Street Design

Union, N. J., builds low cost light traffic streets that show excellent resistance to winter's frost damage

By **GEORGE KLING**
Superintendent
Department of Streets & Highways

UNION, N. J. has been experimenting with a new design for a semi-permanent street, that we feel fits our particular needs very adequately.

Union is a suburban residential community. Most of the streets are not particularly heavily traveled but require, nevertheless, a sound all-weather surfacing.

In 1943 we constructed one street to the new design and enjoyed encouraging success with it. Previously the street had not been passable during storms in the winter months. It has now endured three winters and has showed no sign of breaking.

In 1945 we constructed two more streets in the same manner, and while they have had only one winter of travel, their present appearance gives every indication they will be equal to the test streets constructed in 1943.

Construction

This type of construction we believe is ideal for established neighborhoods where traffic is residential and light. It should not be considered with permanent heavy duty construction, but only as a semi-permanent construction that may require a surface treatment every three or four years.

The procedure we use is as follows:

1. Grade the streets as carefully as possible and provide proper drainage.
2. Compact the grade thoroughly with a ten-ton three-wheel roller. This requires at least four passes over the entire surface.
3. Open the street to traffic for three to four weeks.
4. Regrade if necessary, but do not scarify.
5. Place three inches of ¾-inch stone on the grade. This stone should have 15 to 20% loam in it, in order to bind properly.
6. Roll the stone with a three-wheel ten-ton roller, until the base becomes compacted and no movement is visible.
7. Spread two pounds of calcium chloride to the square yard.
8. Open to traffic for three to four weeks.
9. If any pot holes develop because of lack of binder in the stone, patch with more stone having the proper amount of binder.
10. Spread tar of grade RT-3 on this surface at the rate of ½ to ⅔ gallons per square yard.
11. Spread sixteen to 20 pounds of ⅜-inch trap rock. This may be rolled but is seldom necessary.
12. Open to traffic for two to three weeks.
13. If excess ⅜-inch stone has piled to the side of the road, lay it back on the surface.
14. Spread ⅓ to ½ gallon per square yard of RT-8.
15. Spread sixteen to twenty pounds per square yard of ⅜-inch stone. Roll if necessary.

The road is then complete, except for a sealing coat that you can put on the following season. This should consist of ¼ to ⅓ of a gallon per square yard of RT-8 and twelve to fifteen pounds of ¼-inch stone, a maintenance treatment that is similar to that which we apply to other streets. After this, maintenance should be required only every three or four years.

The cost of this type construction has run approximately 60c per square yard or $1 per foot of frontage on each side of the street.

The result has been that a property owner with a frontage of fifty feet could have a serviceable street for the small cost of $50, exclusive of curb. This road also forms the gutter.

Some of our contemporaries who have watched us have argued that we are doing what they feel is nothing more than a good stout maintenance program. However, I do not believe this type construction can be construed as maintenance. The maintenance work we perform annually on our flexible pavement streets, cost 5c per square yard for one treatment and 10c per square yard for two treatments, and consists of sealing with tar and stone spread on a dirt base.

Our new construction costs approximately 60c per square yard. A permanent design costs approximately $1.80 per square yard and consists of a five-inch stone base with a two-inch top course.

War Years Street Maintenance

Now that we find ourselves in the post-war era, it might be well to summarize surface treatment and other maintenance practices that we have followed during the last four years.

As previously mentioned, this surface treatment is on a dirt road and requires resealing each year to prevent the streets from being impassable during the spring thaws. Our practice is to grade the streets, give them a treatment of calcium chloride and two surface treatments the first year of tar and stone, applying no more than ¼ of a gallon per square yard of tar and twelve to fifteen pounds of ¼-inch stone.

Our mileage has been constantly increasing. In 1942 we surfaced approximately twelve miles of streets in this manner, while in 1945 we treated more than 39 miles. During the same period, the cost of this treatment was reduced from 11½c per square yard in 1942 to less than 5c in 1945.

Beverly Road, constructed last year, carries approximately 2,000 vehicles per day on Superintendent Kling's semi-permanent type of surfacing. The relatively heavy traffic shows no damage to the roadway.

Our labor cost was reduced from 2c per square yard in 1942 to less than ½c per square yard in 1945. This means that more money went into material.

The work obviously required an increase in the amount of equipment. We purchased the following equipment out of savings in the street department budget and it made possible the progress reported:

1 White front-end loader attached to a Case tractor.
1 Barber-Greene bucket loader
1 Nelson snow loader
1 trailer (constructed in our shop)
1 Buckeye stone spreader

The front-end loader is used for stripping, loading dirt and stone into trucks, loading heavy castings, and doing all types of odd jobs. With it one man can load a basin or manhole casting, concrete pipe up to 24 inches in diameter, and practically any object up to ¾ ton. The equipment can travel to any point in the town and at a speed equal to that of a truck. Prior to the purchase of this loader, the work was done by hand labor. It is used almost daily and in many instances replaces as many as six men.

Loader Saves on Stone Spreading

The bucket loaders are used for loading cinders for ice work in the winter and stone in the summer. Prior to their purchase, when spreading stone over tar, it was necessary to contract for this work with the quarry-owned trucks and we lost considerable time each day waiting for stone. We now do all our own stone spreading. We keep stock piles of stone in our yard, and at another location near the streets on which we are working. We have reduced the amount of stone spread on tar by approximately 40% by using our own loader, trucks, and stone spreader. This 40% is a positive saving, as the excess stone was thrown to the shoulders of the road by traffic.

We plan this year to do a little more thorough job of maintenance than in the past. Previously shortage of labor has prevented our spending a great deal of time on spots in the street that break up each winter because of poor subgrade. However, with labor available we plan to have a surface treatment gang, preceded by a gang with sufficient labor to make the required repairs to the subgrade, and to prepare the entire road for tar and stone surface treatment. This should eliminate much difficulty of the type we have had in the past with potholes caused by freezes and thaws.

Although the climate here is relatively mild, we have enough changes in temperature to make freezing and thawing a real problem. During the winter of 1944 and 1945 we had five complete freezes and thaws. This last winter we had nine. By this I mean the frost in each case reached a depth of six inches or more, and then was driven away by a continued warm spell. If we had only one or two freezes and thaws, we would have very little breaking of the road surface.

The progress made in the past three and one-half years has been due to no little extent to the cooperation of Harry E. Kling, Township Committeeman and Chairman of the Department of Streets and Highways, and to the entire Township Committee.

An Engineer's Idea of a Banquet Menu

CONTRACT No. 66

(Short Form)

ARTICLE I —The Contractor shall do all the work and shall furnish all equipment, material, tools, supplies and labor necessary for interior decorating and appurtenant work, as specified or otherwise directed. — Work to be done

ARTICLE II —All work shall be done to the full satisfaction of the Engineer and his guests, who shall in all cases determine the amount, quality, acceptability and fitness of the work. — Engineer to decide

ARTICLE III—SPECIFICATIONS:

ITEM I—MULTIPLE COURSE DINNER

Item 1-1—Readimix—A.S.T.N. 46	*Fresh Fruit Cocktail*
Item 1-2—Ball Bearings with Race—M.E. 29	*Mixed Olives — Celery*
Item 1-3—Plain Concrete Slabs Granolithic Finish—C.E. 59	*Roast Filet of Beef Tenderloin Mushroom Sauce*
Item 1-4—Rip Rap—A.W.W. 111	*Roast Potatoes*
Item 1-5—Washed Gravel—¼"—O.S. 43	*New Green Peas*
Item 1-6—Landscaping & Sodding E.E. 27	*Combination Salad 1000 Island Dressing*
Item 1-7—Cast Iron Pipe, Coal Tar Dip—A.W.W. 83	*Frozen Eclair with Chocolate Sauce*
Item 1-8—Paving Block and Cushion A.S.T.N. 98	*Rolls & Butter (We hope)*
Item 1-9—Hot Mix—O.S. 4-11-44	*Coffee*

ARTICLE IV —The quantities to be paid for hereunder shall be actual quantities furnished in accordance with the specifications and as measured and approved by the Engineer. — Payment

This is the way the Ohio Society of Professional Engineers felt that a menu should be prepared for their annual banquet held recently in Akron. The menu was actually a two-page affair; the other page is headed "A Contract for Interior Decorating and Appurtenant Work." R. LaDue, President of the American Water Works Association and Chief Engineer and Superintendent, Bureau of Water and Sewerage, Akron, Ohio, was the master of ceremonies.

How a Municipal Realty Corporation Might Function

By LOUIS JUSTEMENT
Architect
Washington, D. C.

A NUMBER of states have already enacted urban-redevelopment legislation, and if the Wagner-Ellender-Taft bill is adopted their number will be greatly increased. Most of these state laws permit re-assembled land to be *sold* or *leased* to private enterprise for redevelopment purposes. If we proceed logically we shall, sooner or later, realize the futility of *selling* such land—and of thereby confronting the public with the painful necessity of re-acquiring the land at great expense forty or fifty years from now. For a second redevelopment will then become necessary unless we assume that we are to make no further progress. If the re-assembled land is not sold but *leased* to private enterprise, however, the ultimate result will be that much if not all of the urban land will become municipally owned. For blight is a function of age and may ultimately extend over an entire city; so that all urban property might, sooner or later, be acquired by the municipality for redevelopment purposes. Would this end-result be desirable?

The answer is an emphatic *yes* if we think merely in terms of city planning. We might even say that, until this time is reached, real city planning will be impossible. Our planning commissions cannot create a truly modern city, one which makes full use of our technical knowledge and resources, without profound disturbances in property relationships. If we confine ourselves to plans that do not seriously affect existing property values, we shall make only minor changes in the present city pattern. Under such conditions it is scarcely worth-while to attempt rebuilding the city—except as an intermediate step which gets rid of blighted areas and provides activities which are useful in averting unemployment. Comprehensive city planning and rebuilding would begin perhaps fifty years from now when complete municipal land ownership finally made it possible.

The Case for the "Authority" Type of Corporaton

There are, however, disadvantages to municipal land ownership. In the first place, the large metropolitan region frequently consists of several municipalities that extend into two or more counties and sometimes into two or more states. Even from the point of view of city planning, therefore, municipal land ownership might not permit planning the entire metropolitan area as one integrated unit. The chief objections, however, will be based on suspicion of local politicians and aversion for any extension of governmental bureaucracy, be it on the national or local level. If there is to be a monopoly in the ownership and control of urban land, the average citizen might accept more willingly a privately owned but publicly regulated corporation similar to the local telephone company.

It is unlikely, however, that any profits can be made out of assembling urban land and leasing it for redevelopment—and without the lure of profits private enterprise cannot be expected to enter this field. On the contrary, this phase of urban redevelopment is certain to result in very substantial losses that will require substantial subsidies on the part of government. It would not seem reasonable to foster the creation of a purely private corporate monopoly of the land assembled at the expense of the public. We are thus led to consider the possibility of a public corporation that will combine the efficiency of the average privately owned public utility with effective public ownership.

Organization of the Authority

The Municipal Realty Corporation can be created as an effective instrument for carrying out urban redevelopment. Organized as a public corporation or "Authority", its board of directors can be selected on a basis which gives representation to the various political subdivisions of the entire metropolitan area. Nominations for board membership can be made by the more important civic, trade, and professional organizations. From these, in the case of a metropolitan region, selections can be made by the mayors of the several municipalities in the area. The functions of this board would be the same as those of the average private corporation: selecting the best available corporation executive, evaluating the results obtained by the management, and exercising only a broad control over policy. These duties would not require an excessive amount of time and it would, therefore, be possible to prevail upon outstanding citizens of unquestioned integrity to serve on the board.

Free and Well Paid Management

The primary responsibility of the board would consist in the selection of the ablest obtainable president or executive director of the M.R.C. This official should command the respect of the entire community and be given the wide powers usually given to the executive of a well-managed private corporation. If urban reconstruction is done on a large-scale, the M.R.C. will become one of the largest business enterprises in the average city and the salary of the executive director should correspond to the importance of his functions. If the management of the M.R.C. is as well paid and as free from civil service requirements as that of the average public utility corporation, there is no reason why we could not expect the same efficiency we associate with private corporations. For efficient corporate management is not necessarily contingent upon the profits which accrue to management: in many cases we find efficient corporation executives who own negligible quantities of stock in the corporations they manage —or no stock in such cases as the Tennessee Valley Authority or the Port of New York Authority or mutual savings banks or life insurance companies.

Subsidies and Controls

The M.R.C., as a public corporation, will not be required to make profits, but it should at least break even so that it will be financially independent of local politics. Subsidies will be required to write down existing land values to the point where M.R.C. can lease the land on the basis of a rational use and pay all operating expenses. It is almost inevitable, in view of the narrow tax base of municipalities, that these subsidies will come from the federal government.* At most, the cities will be required to participate on the basis of matching fed-

* Title VI of the Wagner-Ellender-Taft bill (S. 1592), now before Congress, would provide such subsidies.

eral grants on a predetermined basis. The federal government will, therefore, be in a position to determine the conditions under which federal subsidies are made available. These conditions should permit the maximum freedom to the cities and the M.R.C. Essentially they should consist of only three forms of control:

1. Urban reconstruction should be done on the basis of a master plan for the entire metropolitan city.

2. The M.R.C. should be required to cooperate with the federal government in controlling construction volume in accordance with the needs of the national economy.

3. The M.R.C. should enjoy maximum freedom in methods of operation consistent with the two previous conditions, but all its accounts must at all times be subject to federal audit.

This last requirement would help to overcome any suspicion that, in spite of safeguards previously discussed, the M.R.C. would come under the control of crooked local politicians. It may be argued that, while this political corruption would probably not take the primitive form of reaching into the corporate till, there would still be plenty of opportunities for rewarding deserving friends. If urban reconstruction is done on the basis of genuine city planning, however, there will be fewer opportunities of this type than under existing state legislation. As long as the initiative for redevelopment projects is expected to come from private interests, there will always be the suspicion that favoritism is being shown even when it is not.

The Need for a Real Master Plan

If no redevelopment is done until a real master plan has been prepared and the areas are then selected on the basis of a rational implementation of the plan, we shall have a better chance of avoiding even the suspicion of favoritism. The M.R.C., in cooperation with the planning commission, would determine the areas to be redeveloped first and would assemble the land by direct purchase or condemnation. The land thus assembled could be advertised for public bids on the basis of the use, population density, and similar conditions contemplated by the master plan. The development corporation could bid for a lease just as easily as it could for title to the property.

How will it be possible for the planning commission to prepare the master plan for the reconstruction of the city? Must we wait until the city is entirely reconstructed on the basis of a slavish adherence to the general pattern of the present community before we can undertake to create the modern city? It is quite possible that we shall be compelled to do so unless we have the imagination to take one more step at this time.

Some urban functions are natural monopolies. There are very few of us, even among the most devoted adherents of free competition, who would like to see competition preserved or re-established in such things as water supply, telephone service, light and power, gas service etc. The ownership and control of urban land would not now generally be placed within this classification. If we really intend to rebuild our cities on a more rational pattern however, the author of this article believes that we shall be led, inevitably to the creation of a monopoly in the ownership of urban real estate.

Establishing Fair Values for Condemnation Purposes

If we admit that the ultimate result of our operations will be the ownership of all urban land by the M.R.C., however, what is to prevent us from acting on the basis of this knowledge If we really want to start building the modern city now, we can do so by changing our laws for the condemnation of urban land. We could say that the fair value upon which condemnation is based shall be the value of the urban land on some fixed date prior to the adoption of the new master plan, no matter when it is actually acquired by the M.R.C. We would then find that whatever losses had occurred in some sections were made up by gains in other sections. The planning commission could proceed without an undue fear of disturbing property relationships and the M.R.C. would not be required to assemble all the land in the city as a preliminary to effective planning. The property owners throughout the city could continue to sell, lease, rent or mortgage their land, but all concerned would be on notice that when the property was finally acquired by the M.R.C. the valuation, for *condemnation purposes only*, would be on the basis of the value prevailing on a fixed date prior to the adoption of the master plan.

There would be a number of problems to be solved under such a scheme, but I do not believe they are insoluble. Allowance would have to be made for fluctuations in the value of the dollar over a long period of time, but this could be readily measured in terms of cost-of-living indexes agreed upon in advance. There would be instances of undue hardship in the case of some of the properties adversely affected by the new plan, but they could be alleviated by condemnation in advance of need by the M.R.C. This would not add materially to the total cost of land acquisition since the public would not be compelled to pay for the increased land valuations in other sections which its own expenditures had created. The bulk of the land throughout the city would probably not be affected too seriously. In any event, the total cost to the community would be far less than the alternative of undertaking the first rebuilding on the basis of an unsatisfactory city plan.

"New Cities for Old"

It has not been possible, within the space limitations of this article, to do more than outline the principal features of the proposed Metropolitan Realty Corporation. In "New Cities for Old" I have described in more detail some of the financial mechanisms that could be employed and some of the problems that would have to be faced. The most important element with respect to any specific proposal such as the M.R.C. is its proper integration into the broader frame of reference of urban reconstruction and the needs of the national economy. It is for this reason that, in "New Cities for Old," I have tried to consider all phases of the problem. Economists and realtors, as well as city planners, are beginning to realize the necessity for urban reconstruction, but there are relatively few among them who realize the ultimate implications of their proposals.

It is time that we try to develop a method of city building that is integrated with the needs of the national economy and gives full scope for the maximum degree of private initiative consistent with the objectives we seek to reach. Our thinking on this subject has been too specialized because, as individuals, we have been afraid to venture beyond the narrow confines of our own specialties. We have attempted to solve the broader problems by means of the forum, the round table and the committee in order to permit representation of the various specialists. I believe that we should rely more on individual imagination and courage in formulating the over-all program and make use of the specialists and the committees for critical analysis.

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* *New Cities for Old* by Louis Justement. McGraw-Hill Book Co., Inc., New York, N. Y. 1946.

A Quarter Century of County Parks

By W. RICHMOND TRACY
Engineer and Secretary
Union County Park Commission
Elizabeth, N. J.

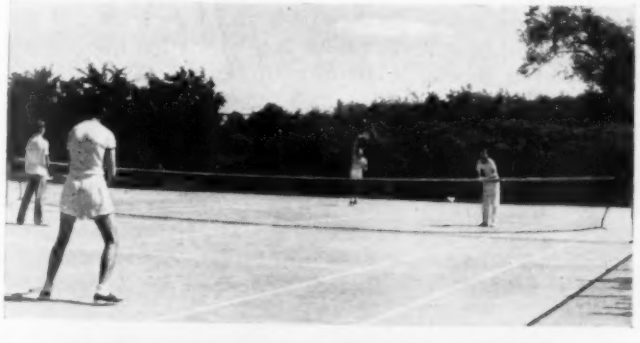
THE ONLY "Keep off the Grass" signs in the Union County (N. J.) Park System are located temporarily near newly seeded areas. That fact explains, as well as any one fact could, the Park Commission's "Use it, don't just look at it" policy for the past 25 years. That, too, is why the 1945 attendance report for organized activities shows that seven out of every ten persons recorded in that report were "participants" and not "spectators." Of the 2,165,143 accumulative total reported for such activities, 1,560,669 represents people who actually used the facilities provided for recreational enjoyment, as compared with the much smaller total of 604,474 who watched others actively engaged in play. Only a few years ago, it was nearly a 50-50 proposition, but the scale has grown steadily heavier on the "active" side.

Administration Building of the Union County Park Commission in Warinanco Park.

A hurried trip back to 1921 when the Park System was authorized by referendum vote seems desirable here. At that time, as now, talk of "war memorials" was common, following the First World War. In the Township of Cranford, Union County, N. J., that talk focused on the possibility of a memorial parkway along that section of the small but picturesque Rahway River which flowed through the town.

It soon became apparent that such a project transcended local boundaries and interests, and a Union County Park Association was formed by civic-minded individuals to interest residents of adjoining municipalities. Although the original idea of having the parkway or river park as a "memorial" was dropped, the County Park System emerged. The Association pressed for the appointment of a preliminary park commission to make a survey of the county's park and recreational needs, that commission reported favorably, and the people voiced their approval of that board's recommendations at the November 1921 elections.

From the first the Commissioners realized the need for speed in acquiring the land later to be required for park purposes in this fast-growing metropolitan area before rising prices would make the cost of acquiring such land prohibitive. As a result, 4,116 of the 4,450 acres presently authorized for county parks have been acquired, and



LEFT: *Clay tennis courts in Warinanco Park.*

BELOW: *Left, a group around the raccoon pen outside the Trailside Museum in the 2,000-acre Watchung Reservation; right, coasting on a slide made from part of a bleacher.*

TOP LEFT: *New Jersey State Spring Shoot in Rahway River Park. Many statewide athletic events are held in Union County parks.* CENTER: *the pool in Rahway River Park.* BELOW: *Sports in Warinanco Park left, a bocce tournament; right, baseball field number 8.*

this year promises much progress on the land acquirement program.

Donations of land totaling 500 acres, with an estimated value of $1,000,000, are included in this total.

Because of the Commission's policy on land acquirement, Union County was the only county in the state that was not rated as being deficient in acreage set aside for park and recreational use when the New Jersey State Planning Board published a report entitled "Where Shall We Play" a few years ago.

As fast as areas were developed, the Recreation Department found a demand for them, and soon more areas were needed. The economics of having "supply" meet "demand" in the provision of recreational facilities for the people of Union County has been achieved by studying trends, scanning attendance figures closely, and trying to meet the ever increasing needs and demands of the people.

Attendance charts reveal a great range of recreational activities, beginning with "Archery" and ending with "Trailside Museum, Trapshooting and Tobogganing." Based on 1945 reports, children's playgrounds, bicycling, softball, picnicking, baseball, boating, fishing and coasting attracted the largest number of visitors, attendance ranging from 325,771 for the first-mentioned activity to 91,043 for the last. Altogether, fifty different activities are shown in the chart.

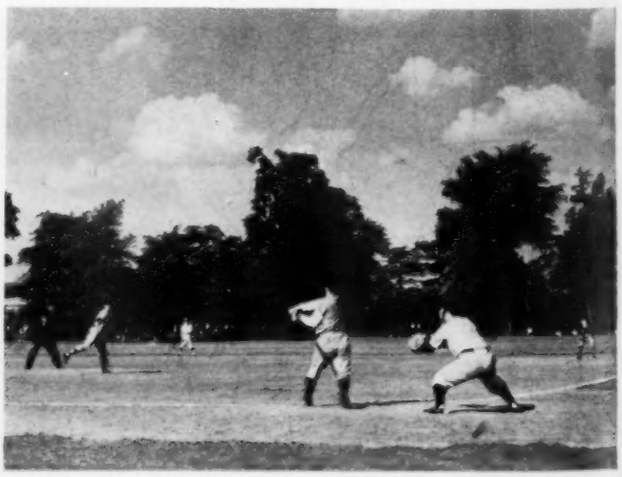
In recent years, the development of a nature program probably has been the outstanding achievement in recreation. Attendance at the Trailside Museum in the 2,000-acre Watchung Reservation has skyrocketed from 3,416 in 1941, when the museum was first opened, to 16,026 in 1945. Many other thousands were reached by the nature program through talks by the park naturalist at the eighteen children's playgrounds as well as before Boy and Girl Scout Groups, PTA's, women's clubs, and other civic organizations.

Owner-operation has been the Commission's policy for all of the facilities for which a charge is made. Only in the case of its Watchung Riding Stable, did the Commission try a "concession" arrangement for a short while, but since 1933 this facility has been operated by the Commission, as have a 27-hole golf course, known as Galloping Hill, two swimming pools, an elaborate pistol, rifle, skeet and trapshooting range, boats, tennis courts, and toboggan slides. Users of these facilities, and the patrons at the refreshment stands, which are also park-operated, have undoubtedly received "more for their money" as a result.

Organized Sports

While many of the sports in the parks can be enjoyed by individuals, with their families and friends, others call for careful planning for group participation. This has been done by the Recreation Department, which has organized numerous clubs that meet in the Commission's Administration Building. Offices are converted to clubrooms nearly every night in the week. In addition, that department sponsors leagues in a dozen different sports, and conducts tournaments and other competitions. Such a sport as tennis, alone, calls for conducting twenty different annual championships.

One of the most amazing things to an average visitor to such a park as the Commission's 204-acre Warinanco Park in Elizabeth and Roselle, is that provision for active play has not involved a sacrifice of beauty. In this park, alone such outstanding sights as a formal annual garden, a 3,000-plant azalea display, and dozens of well-established Japanese cherry trees supply the esthetic background for carefree play. In Cedar Brook Park, Plainfield, the Commisison has one of the best representative public plantings of iris in the



LEFT: *Fishing in Rahway River Park.* RIGHT: *A view of the system's Galloping Hill golf course, which has 27 holes.*

country, a magnificent Shakespearean Garden, a Peony Garden, and extensive daffodil plantings. Attractive vistas throughout the park system have been jealously guarded through all phases of road-building, athletic-area development, and the building of necessary structures. Practically all of the twenty different park units contained low and swamp areas which have been converted to beauty and usefulness.

Increased Property Values

"How much has it cost me?" is a question that, naturally, might be expected from some of the county residents when county parks are mentioned. "Nothing" might not be an answer that would coincide with figures that appear in the county budget for "County Parks" each year. But from a long-range viewpoint, "nothing" is a logical answer, the reason being that in every case where there has been a county park development, the development has been a great stimulus to home-building with a consequent rapid increase in assessed valuations.

A study made by a firm of municipal accountants in 1939 showed that assessed valuations on properties adjoining one of the first parks to be developed in Union County—Warinanco Park—had jumped 631.7% over a seventeen-year period in the city of Elizabeth, and 256.7% in the borough of Roselle, and these increases were several times greater than the increases shown for the remaining lands in the two municipalities.

At that time, it was estimated that the tax revenue on the increased valuations directly traceable to park development was such that it could have paid for the entire cost of this park in a five-year period. Similar increases have been recorded for virtually all of the county park developments. Actually the entire cost of interest and amortization of park bonds and annual maintenance appropriation represents less than three cents of each tax dollar.

As the time for marking the actual Silver Anniversary of The Union County Park Commision draws close, the Park Commissioners can feel confident that theirs has been a public trust which has been held inviolate. As a result, the people of Union County—a county which grew from a population of 200,157 in 1920 to 328,344 in 1940, with a 100% gain in assessed valuation in the same period, have gained many benefits for themselves and their children—benefits that can be measured in health, happiness, joyous play, relaxation, as well as in dollars and cents.

It is worth noting that the only changes that have occurred in the personnel of the Park Commission over a period of 25 years have been by virtue of death. Two of the members of both the preliminary commission and the first permanent park commission, are just as active as ever—Commissioners Arthur R. Wendell and Caxton Brown, both of Summit. This is a Silver Anniversary for them, too, a 25-year anniversary of time devoted to planning and putting plans into effect for development of a different kind of park system—a system where beauty and "human use" go hand-in-hand.

Rifle shooting at the Rahway Park range.

A high school field day in Warinanco Park.

A Town Grows Up

When the population of Panama City, Fla., increased from 12,000 to 40,000 over a period of five years, the municipal services required wholesale alterations.

By C. E. SWANK*
City Manager
Panama City, Fla.

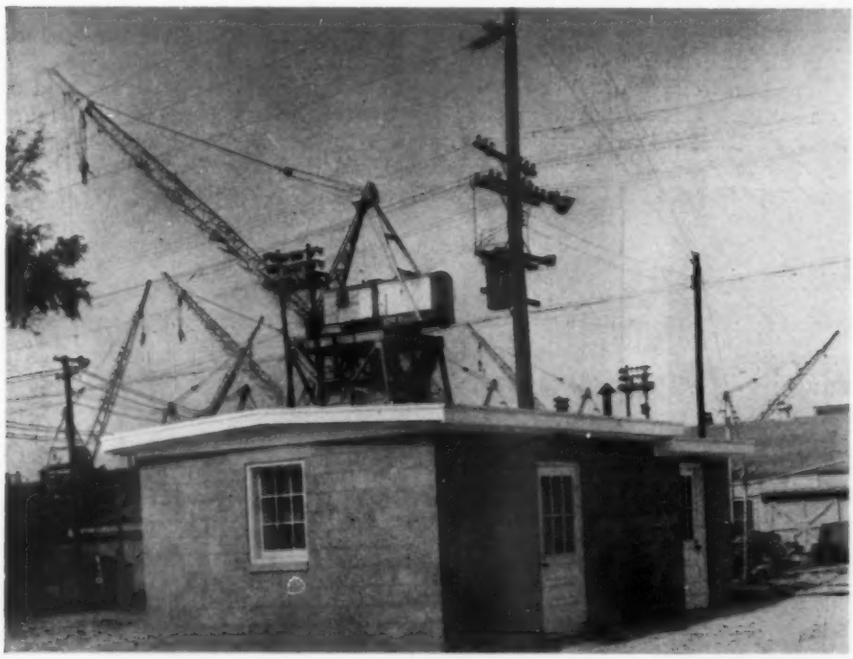
PANAMA CITY, FLA., was a quiet, attractive, Gulf Coast town in 1940, justly famous for its fishing, bathing, beaches, and resort attractions. Industry also was well represented. All told Panama City was peaceful and uncrowded, with a population of about 12,000. Within the next five years 28,000 people moved in.

The impact of such a tremendous influx on the city's utilities was terrific. Health and sanitation was threatened, drinking water was inadequate, fire hazards were greatly increased, and practically all of the city's services were overtaxed. The governing officials of the town were faced with a complicated problem which had to be solved immediately. This story shows how admirably they succeeded.

Panama City's phenomenal population growth was caused largely by war installations. Tyndall Field, a large gunnery school and airbase, was located twelve miles east of the city; Wainwright Shipyard, employing many thousands, was constructed in the western part of town; a naval section base was located a few miles farther west; an oil barge terminal was located a few miles northwest. The city was thus eligible for Federal Works Agency financial aid in carrying out its well-planned program for fast action.

Smith and Gillespie, Consulting Engineers of Jacksonville, Fla., were completing all engineering plans, including airfield, water, sewerage and other utilities at Tyndall Field when that firm was called in by the city to handle its immediate problems in engineering design and supervision. Shortly thereafter Smith and Gillespie submitted to the city plans for an additional water supply of 3,500,000 gallons per day with two 500,000 gallon reservoirs and additional distribution lines to serve the St. Andrew Area and to meet some of the new shipyard requirements. Soon plans were completed for a 2,000,000 gpd sewage treatment plant for the same area, including a collection system and five pumping stations. The plant was designed for primary treatment with the intention of converting it to complete treatment by the addition of trickling filters and secondary sedimentation as soon as materials and labor became available.

* Mr. Swank has since left his post in Panama City to become city manager of Fort Pierce, Fla.



Panama City's sewage lift station with the Wainwright shipyards in the background.

Following the initial water and sewerage projects which were soon under construction, the city instructed the engineers to provide plans for new fire station and equipment, jail and police headquarters, and garbage-disposal facilities, a public comfort station, a health clinic, an additional 500,000 gpd water supply for the Millville Area.

Each part of the program was gotten under way in quick succession as the engineers presented plans for the work. However an exceedingly forward-looking city administration directed the engineers to provide solutions not only for the immediate emergency, but to integrate them with a comprehensive plan to meet future needs.

The long-range program is now in various stages of execution. Preliminary plans have been drawn for city-wide water and sewerage facilities, providing for modern sewage treatment and disposal and adequate service to all areas; plans and specifications have been completed for a 60-bed modern hospital. The site for the structure has been secured and 60% of the funds necessary for its construction are now available. It is expected that this additional asset to the city's health facilities will shortly materialize.

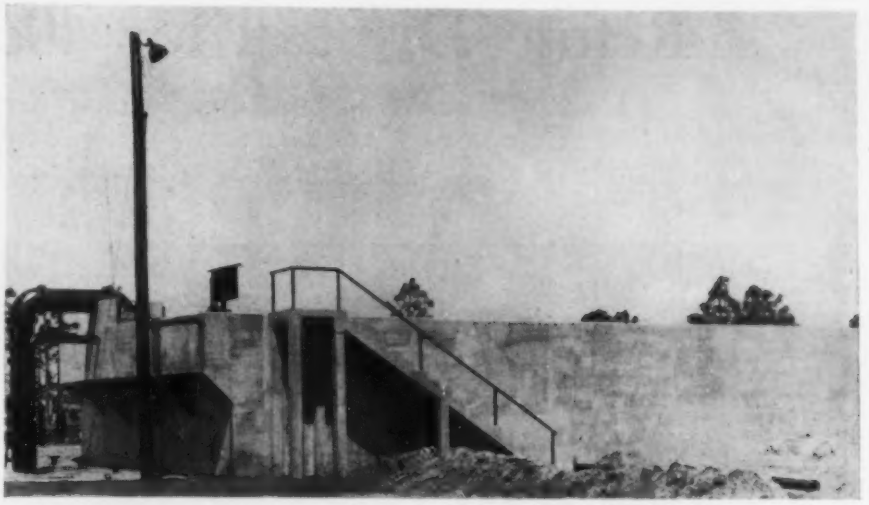
Traffic, residential growth, industrial development and other problems have made it obvious to the citizens and officials of Panama City that the next logical step is a zoning plan for the entire city area. The city has appointed a zoning commission composed of a representative group of citizens to confer with the engineers on this problem. A zoning plan for the entire city is now in process of development and, upon completion, will represent the recommendations of the engineers and the judgment and decisions of the city's zoning commission.

The engineers have been asked by city officials for a comprehensive bay front development plan, involving construction of new land area surrounding the existing small bay front park, a shoreline boulevard, parking areas, recreation piers, yacht basin, marine garden, waterfront concession area, municipal auditorium, band shell, athletic facilities, and others. It has been proposed that all main building structures of the Bay Front development be designed for architectural harmony with the buildings on the street leading into the waterfront boulevard. The Chamber of Commerce is much interested in this project* and a movement is afoot to induce building owners to modernize their store and building

* See "Town Meeting Arouses Interest in Improvement Plan for Panama City," THE AMERICAN CITY, January 1946, page 71.

fronts in keeping with the architectural motif.

The citizens and officials of Panama City don't deny that the tasks involved in materializing these plans are ambitious and difficult undertakings; on the contrary. Everyone interested is proud of that fact and each step is considered as a challenge to that well-known phenomenon, inertia. In the case of Panama City, however, the Mayor, and Commission, and the Chamber of Commerce, can look with satisfaction at the present accomplishment of a large part of their plan and feel confident that their continued efforts will speed completion of their ambitious program.



This clarifier is part of the sewage treatment plant constructed to care for Panama City's rapidly growing population.

Water Works

The renovated water supply consists of the following:

1. Seven deep wells (500-700 feet) equipped with Layne deep well turbine pumps capable of delivering an aggregate of 4 mgd.
2. Storage by two 500,000 gallon concrete tanks. The well water is aerated before entering either tank.
3. Chlorination by two Wallace & Tiernan chlorinators.
4. Pumping by three 400-gpm and two 750-gpm American Well Works pumps. The pumping station has also a 1,200-gpm Continental gasoline-driven standby fire pump. One of the 400-gpm pumps is similarly served by gasoline power for standby.
5. Extensions to the existing one-mgd filter plant were the new gravel wall well and one Wallace & Tiernan chlorinator. This plant is served by three 10,000 gallon This plant is served by three 10,000-gallon throughout the area.

Sewage Treatment

The 2-mgd sewage treatment plant was designed originally to provide complete treatment but because of material restrictions actually furnishes only primary treatment. Trickling filters and secondary sendimentation were omitted temporarily. The plant provides the following:

1. Two rectangular primary sedimentation tanks with sludge collecting and skimming mechanisms.
2. Digesters, unheated, each 45 feet in diameter by 18 feet in depth. Tanks have open tops with sufficient freeboard and stops to provide the installation of floating covers at a later date.
3. Effluent chlorination in the contact chamber designed to provide 10 minutes retention at average flow.
4. Eight sludge drying beds each 15 by 50 feet having concrete block walls and underdrains.
5. Metering of the effluent by Parshall flume before discharge to approximately 4,600 feet of outfall sewer into the north arm of St. Andrews Bay.

A Water Supply's "Eel Filter"

THE RECORDS don't show any eels actually coming out of the taps at Kittery, Me., but they did get as far as the house service corporations, the screens of the large meters in the Navy Yard, and a lot of them got into the screens at the intake to the chlorinating machine. However, the situation is much improved now, sufficiently so that if you want an eel for dinner, the Kittery water works will be glad to furnish it—that is, if you come down to the plant. The operators no longer will try to deliver them through the mains. Paul F. Howard of Whitman and Howard, Engineers, Boston, Mass., explained how his company helped this community solve its annoying eel problem in a paper delivered before the Maine Water Utilities Association recently.

The eels became particularly troublesome during the summer of 1945, clogging so many services that the water department was forced to acquire an additional force of hard-to-get workers. The plant had screens at the intake works but the brick runways were broken, so the eels passed around the screens. The rebuilding of these 35-foot broken runways proved to be difficult. The water would have had to be diverted temporarily through a by-pass line that would have required much work and at best would have been unreliable. Considering these hazards, the engineers recommended the installation of new strainers at a more readily accessible location, and selected a site just upstream from the existing chlorinator building.

Use Multi-Duct Strainers

At this location, they installed four multi-duct strainers, each containing three baskets, two of which are in operation. The water supply enters the building through two 12-inch pipes. In order to install four strainers, it was necessary to branch off from each pipe with a second 12-inch pipe. A gate was placed on each side of each strainer which could be shut off easily in case of repairs. The strainer baskets are 12 inches in diameter and about 12 inches long with 3/16-inch circular openings. The total area of the holes in each basket is about 1½ times the area of the 12-inch pipe so that with two baskets in operation on each strainer at all times the area of the holes is equal to about three times the area of the 12-inch inlet pipe. No interruption of service occurs during cleaning. Two baskets are in service while the third is being cleaned. The cleaning operation is simple and quick. The operator simply moves the operating lever one-third turn to a positive stop, turns the handwheel a few turns, lifts the lid, and removes the basket. Gages on each side of the strainers measure the drop in pressure; a drop of two pounds or more signals the need for cleaning.

The eels are free to Kittery residents for the asking. When there is a surplus, the operators throw the excess back into the nearby brook. The strainers have ended practically all troubles caused by the eels. In fact, one customer has notified the Water Trustees that the water is much better because of the "filter plant."

Refuse Disposal for 40c Per Ton

Good fill areas conveniently located permit suburbs of Columbus, Ga., to dispose of garbage by the sanitary fill method at reasonable cost

Digging a good clean ditch about three feet deep is the first step in the use of the sanitary fill at Columbus, Ga.

When the day's allotment of rubbish has been placed in the excavated ditch, the operator uses the tractor to compact the fill material as densely as possible.

THE city of Columbus, Ga., has a 150-ton incinerator that has been doing a workmanlike job of reducing the garbage and refuse to an inert residue. However, in the outskirts of Columbus is a rapidly growing suburban area that probably will be incorporated into the city within the next few years, which during the last two years has been disposing of its garbage by the sanitary fill method at a cost and in a manner that should please both the city treasurer and health department.

Fill vs. Incinerator

Operation of the sanitary fill under the direction of J. A. Willman, Public Health Engineer for Muscogee County, has shown for the last two years a unit cost of 40 cents per ton for a gross quantity of refuse averaging 5,000 tons per year. The city, on the other hand, has been disposing of 15,000 tons of refuse yearly at a cost of $1.00 per ton. The discrepancy has been convincing enough so that Director of Public Works J. M. Graddy plans to abandon the incinerator and use the sanitary fill for city refuse disposal.

Engineer Willman uses a worked-out gravel pit for one of his fill areas, and a low flatland area for another. At this latter point, he contemplates making a fill of one lift only, whereas at the other he plans to bring the fill up in four or five lifts and completely level off a small valley. This will require careful planning of his earth-moving operations, but with the available dirt he does not feel that it will be too troublesome. The problem of disposal areas never has been difficult. A number of people near Columbus have requested that their lands be used for this purpose.

Fill and Cover Operations

The practice at present has been to dig a trench 8 feet wide and 3 feet deep, fill and compact it with a refuse layer 4 feet thick and cover it with an 18 inch layer of dirt. When he plans to make more than one lift he will increase this top cover to 4 feet.

Ditches have been placed 4 feet apart. However, Engineer Willman believes that he will widen the ditch to 16 feet and the intermediate spacing

LEFT: *After the refuse has been compacted the operator covers it with an 18-inch layer of earth. Although this illustration shows a certain amount of salvaged material alongside, normally everything is buried.*

BELOW: *The completed fill area in a trim, rodent-free, nuisance-free condition. Engineer Willam stands alongside of the tractor and bullclam.*

between them 5 feet, believing that this additional intermediate spacing will give better control over the fill sideslopes.

Can Handle Larger Load

The equipment used on the fill consists of an International T.D.-14-56 hp diesel tractor with a Model 60 8-foot Drott bullclam bucket. This unit can more than adequately care for the 5,000 tons of refuse per year, and could cover more without difficulty. Its operating cost has been $2,000 per year, most of which has been salary for the operator. Actual maintenance on the tractor has not run more than $25 for the entire period since it has been purchased. The fill area is noticeably free of any nuisances such as fires, rats, blowing papers, and other similar difficulties.

Representatives from a number of cities have visited Columbus to observe the operation of the sanitary land fill. Among them are Johnson City, Tenn., Macon, Marietta, Rome, Monroe, and Augusta, Ga. Several of these have already started land fills.

Train Transportation to St. Louis for Water Works Convention

IF YOU ARE planning to attend the American Water Works Association conference in St. Louis, Mo., on May 6-10, you should get in touch with the AWWA Transportation Committee in order to get the best possible train and pullman accommodations. Train schedules have been selected by the Committee to provide transportation from various areas throughout the country. Accommodations are being assigned in the order that requests are received.

Members of the Transportation Committee include the following:

J. R. Barker
Neptune Meter Co.
320 Market St.
San Francisco 11, Calif.

Cyrus R. Bird
The Pitometer Co.
205 W. Wacker Drive, Chicago

James R. Brown
National Water Main Cleaning Co.
205 W. Wacker Drive
Chicago 6, Ill.

Hugh S. Dewey, Mgr.
Western New York Meter Co.
11 Niagara St., Buffalo 2, N. Y.

C. N. Isaacson
U. S. Pipe & Foundry & Foundry Co.
912 Pershing Square Bldg.
Los Angeles, Calif.

H. M. Olson
Ohio Salt Co.
171 Longue Vue Drive
Mt. Lebanon, Pittsburgh 16, Pa.

O. J. Ripple
Supt. of Filtration
R.F.D. #2, Littleton, Colo.

Ralph R. Silver
Silver & Douce Co., Inc.
310 Protective Life Bldg.
Birmingham, Ala.

E. A. Sigworth
Suite 1333
230 Park Ave.
New York 17, N. Y.

Egmont S. Smith
Neptune Meter Co.
2014 Commerce St.
Dallas 1, Texas

Many of the railroads have expressed a willingness to cooperate even to the extent of providing extra cars, if required. The Transportation Committee requests that those applying for reservations give the date and time of leaving, the point of departure, the type of Pullman accommodation desired, the name of the persons using the accommodations, and whether one way or round trip tickets are desired.

Trend in Control Over Ground Water Use

Seven states, by direct legislation, regulate not only the sanitary condition of the water but also the amount of water to be drawn from surface or underground sources. Six other states can exercise this power by implied legislation if it is required.

SEVEN states exercise control both over the sanitary quality of water and over the amount to be drawn from surface and underground sources. These states are Minnesota, Maryland, New Mexico, New York, Ohio, Utah, and Wisconsin. New Jersey has similar control, restricted, however, to public supplies. Wyoming has appointed a commission to study the problem. Five other states, Kansas, Massachusetts, Montana, North Carolina, and North Dakota, have laws which permit this kind of control by a state agency if it is needed.

New Mexico was one of the first states in the west to set up control over the appropriation and use of ground water; it passed such legislation in 1931.

Maryland's law empowers the Department of Geology, Mines, and Water Resources ". . . to conserve, protect, and utilize the water resources of the State . . ." Domestic and farm wells and wells less than fifty feet deep are not restricted.

Minnesota's law, passed in 1937, places the quantity control of surface and underground water under the Department of Conservation, and requires that any agency wishing to appropriate such water must obtain written consent of the commissioner. The law does not apply to the use of water for domestic purposes for less than 25 persons or water supplies located within the boundary of an incorporated municipality. The sanitary control of such waters is vested in the State Board of Health and is limited to public water supplies.

New York's Conservation Department apportions and restricts the use of the water supply and governs the quality to be supplied. The work is particularly important in various Long Island counties where wells must be approved before they can be sunk to determine whether their use will interfere with other wells used as sources of water supply.

North Dakota's law is perhaps the most comprehensive on the books today and gives virtually complete powers to the Water Conservation Commission. Under authority vested in the Commission, the quantity of water pumped from any well, public or private, may be limited. The law was passed in 1937.

Ohio's law, passed in October 1945, does not give such direct control. Administered by a Water Resources Board, it prescribes rules for regulation of drilling, operation, maintenance, and abandonment of wells. While the law does not specifically regulate the amount of water that can be used, it provides the Water Resources Board with sufficient powers to do so if it should be necessary.

Utah's law became effective March 22, 1935, and contains provisions to regulate the appropriation of all ground water, regardless of the quantity diverted. The law requires that all wells drilled be constructed so that the water developed may be placed under control at any time. This is all under the supervision of the State Engineer who may appoint, with the approval of the water users, a commissioner to regulate the withdrawal of underground water from any one area.

Wisconsin only last year adopted a regulation providing that if the rate of withwrawal is more than 100,000 gallons per day, and will adversely affect or reduce the availability of water to any other utility, only a limited approval of the well will be granted. Wisconsin is the only state in which a ground water control law is being administered by the State Board of Health.

New Jersey's law, which applies to public potable supplies only, is administered by the State Department of Conservation, Division of Water. A bill extending the control to other supplies was defeated in the legislature.

The Kansas law requires drillers to make application to the Chief Engineer of the Kansas State Department of Health for approval of their proposed use of the state's water. The Chief Engineer gives his approval only when he is satisfied that the proposed use does not conflict with existing use and does not prejudicially and unreasonably affect the public interest.

Massachusetts limits its control to public water supplies which require official approval as to their appropriateness. Approval of the Department of Public Health would not be given in the event that the proposed public water supply was likely to result in extensive damage to surrounding properties which could not be compensated for by moneys or other legal consideration.

Montana, likewise, gathers data covering the size, character, and amount of production, but does not restrict the well's use.

North Carolina makes only general restrictions. All public water supplies must be approved by the North Carolina State Board of Health, which would include approval of location and site of well supplies. The State Geologist of the Department of Conservation and Development cooperates in the location and selection of sites.

The balance of the states are without specific regulation of underground water use. State health department officials in five states, Idaho, Louisiana, Michigan, Mississippi, and Oklahoma, indicate that the need for such legislation exists. Louisiana, Oklahoma, and Virginia report that laws proposed in their respective state legislatures have been defeated. In Michigan, certain locations have produced more water from aquifiers than was advisable with the result that shortages in ground water have occurred.

An Evaluation of Employee Suggestion Systems

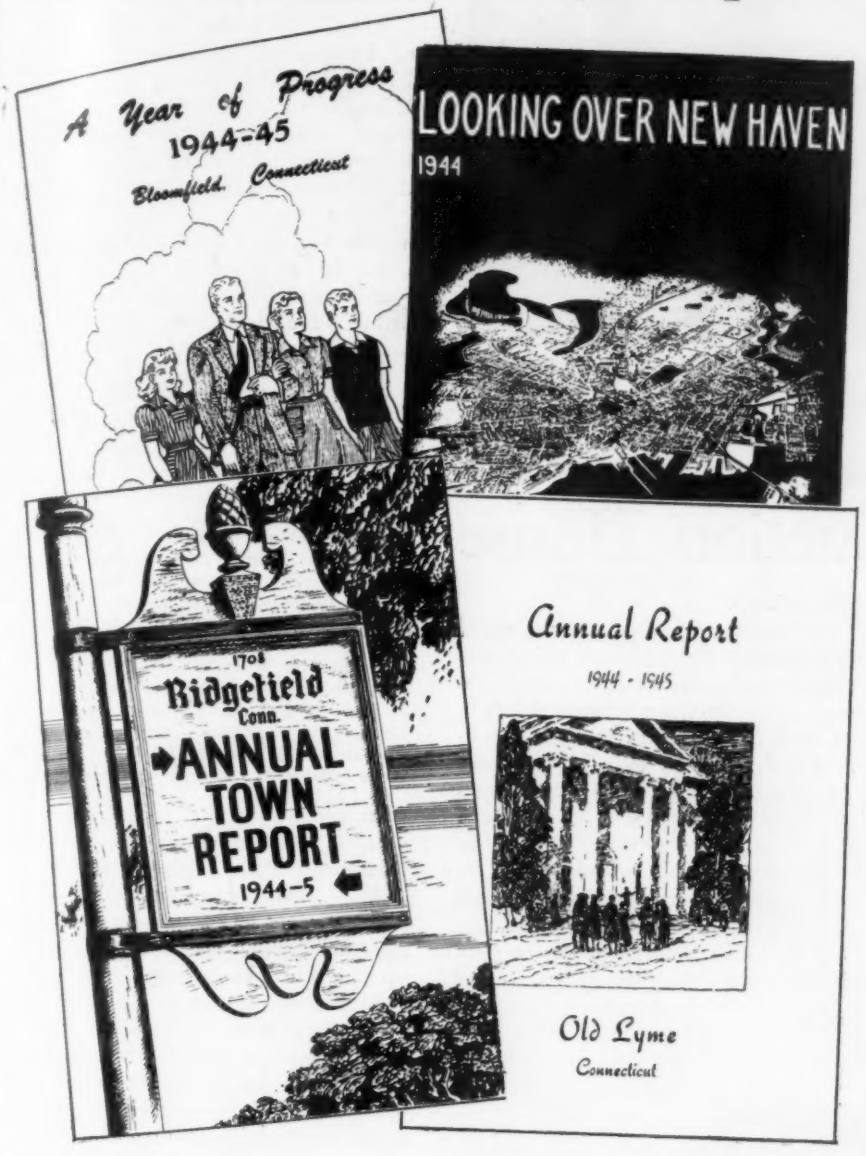
IN ASSESSING the notable success of employee suggestion systems in the federal government in the war, John A. Donaho states, in an article in a recent issue of *Public Personnel Review*, "The groundwork and experience for suggestion systems administration is now pretty well spelled out in recent literature, so that state and local governments are also in a position to establish systems and coordinate them with efforts to improve management."

He lists, however, certain obstacles that must be overcome. The percentage of acceptable suggestions in the average system must, he feels, be increased. More emphasis must be given to guiding employee thinking on specific problems. Adequate presentation of the results must be made to legislative bodies so that legislation necessary to provide the needed financial incentives may be obtained.

Mr. Donaho is Assistant Program Director, Work Simplification Section, Division of Administrative Management, United States Bureau of the Budget.

Public Relations for Municipalities

Prize Winning Municipal Reports



Covers of some of the winners. East Hartford was highest in the 5,000 to 20,000 population group. The cover of its reports was reproduced in THE AMERICAN CITY *last August, page 89.*

WINNERS in the 1945 Annual Report Contest for Connecticut towns and cities were announced March 15 by the University of Connecticut Institute of Public Service, which sponsored the contest. The judges were Maurice S. Sherman, editor and publisher of the *Hartford Courant;* Howard I. Comstock, a public relations council of Bridgeport; and Sidney Edwards, of the Connecticut Development commission.

Reports were judged on how well they met the standards of content, understandability, utility, and attractiveness outlined in the announcement of the contest.

Cornwall and Chapin were given Honorable Mention in the division for places under 1,000 population. No other awards were made in this class because there were too few entries.

Old Lyme won the Highest Award in the division for towns of 1,000 to 2,000 population; the Merit Award went to Orange; and Honorable Mention to Granby.

In the division for towns of 2,000 to 5,000 population, Bloomfield carried off the highest award; Rocky Hill, the Merit Award and Canton and Ridgefield received Honorable Mention.

East Hartford won the Highest Award in the division for towns and cities of 5,000 to 20,000 population; Wetherfield carried off the Merit Award; and Rockville received Honorable Mention.

Among the reports entered by towns or cities of more than 20,000 population, New Haven received the Highest Award; Greenwich, the Merit Award; and Stratford was accorded Honorable Mention.

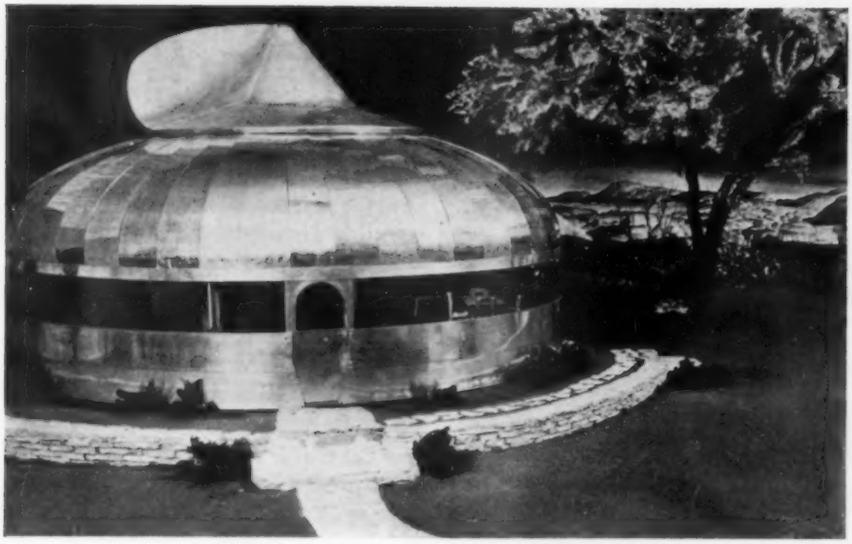
The Importance of Proper Telephone Usage Stressed in Pamphlet

THE Civil Service Commission of Flint, Mich., has distributed among the various city departments a brief and informative mimeographed pamphlet on the use of proper telephone techniques. The Commission stresses the fact that the only contact many of the citizens have with their government is the voice of an unseen person in a city department, and the impression made by a single telephone conversation may affect the citizen's attitude toward an entire department or division. To improve telephone contacts the Commission suggests a checkup on the rules of telephone etiquette.

Among the pointers contained in the pamphlet are the following: The person answering the telephone should be sure to obtain the caller's name and note carefully the details of his request to avoid errors in obtaining information. It is always helpful to repeat the request to allow the caller to correct any errors or ask for additional information. If the caller is kept waiting while the information is obtained, he should be assured from time to time that his request has not been forgotten and the information is being checked. If the contact must be referred to another department it should be done as quickly and pleasantly as possible.

Other important points which should be observed in telephone conversation are outlined in the pamphlet of the Flint Civil Service Commission.

The Flint pamphlet emphasizes the fact that tone and expression are just as important in a successful conversation as the mechanics of obtaining the desired information. A pleasant, interested tone will do much to satisfy the caller. Finally, it is pointed out, speed and efficiency can be attained by speaking slowly and clearly and by adhering to the techniques which the pamphlet describes.



Will they spring up like mushrooms?

Available Soon— A Mass Production House

WHAT appears to be the first positive assurance of mass production—as contrasted to prefabrication—of housing in the United States, was announced on March 21 by Fuller Houses, Incorporated, of Wichita, Kans., Herman Wolf, president.

Of basically new design, the Fuller house can be mass produced in aircraft plants from aluminum, stainless steel, and plastics. Beach Aircraft Corporation, Wichita, is expected to turn out 50,000 houses per year, starting early in 1947. Production in idle aircraft facilities in Wichita alone, it is believed, can be stepped up to 250,000 a year. A nation-wide dealer organization, along lines of the auto industry, is being set up.

The house, with 1,017 square feet of floor space, with combined living and dining room, two bedrooms, two bathrooms, completely equipped kitchen, entrance hall, heating and air conditioning, is planned to sell for $6,500, erected anywhere in the United States and ready for occupancy. The house is said to be virtually dustproof: air can be changed every six minutes. The exterior requires no painting; is designed to withstand 185-mile hurricanes.

As shown by the accompanying photograph, the building is a circular structure. Thirty-six feet in diameter and 22 feet high, it is suspended from a concealed central steel mast on suspension bridge principles. Exclusive of kitchen equipment (which is shipped separately) the house weighs only 7,000 pounds. The house encloses 12,000 cubic feet; but the parts pack into a steel shipping cylinder of 300 cubic feet. Erection on the site can be done in two days by ten men.

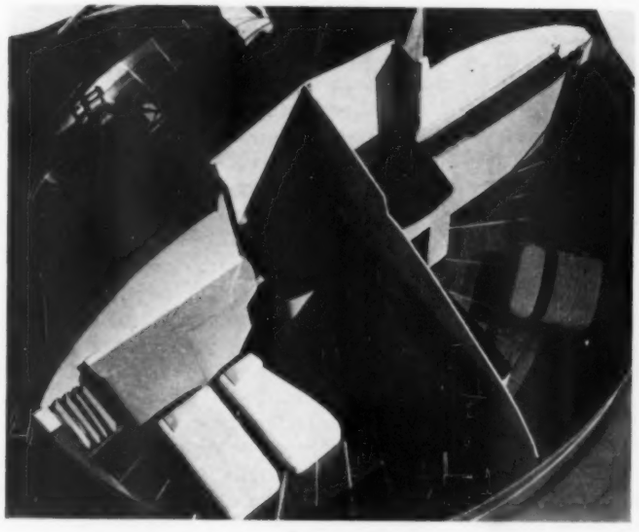
The Fuller house is a development of the original "Dymaxion" design by R. Buckminster Fuller, widely publicized in 1929 as "the house of the future." World War II developments in light-weight metals and of aircraft industry have made the house practical

When mass production of these houses begins, municipalities will be faced in many cases with puzzling questions of building code and zoning ordinance amendments. On this subject Fuller officials state:

"No difficulty is anticipated with building codes on the basis of construction standards. From every standpoint of safety and livability, the house as designed and as produced by aircraft technology sets a higher standard than the average building code requires.

"Reasonable zoning restrictions should be no obstacle in most residential sections, because Fuller wants sites to be landscaped in keeping with the design of the house and the neighborhood. Wherever tradition and prejudice prove a temporary obstacle, the obstacle will not be important because the company sees the most immediate need for the house in planned housing development. In many cases such developments will logically be located in areas outside of zoning restrictions."

In areas protected by zoning ordinances, questions will arise as to the desirability of this type of structure on isolated lots among houses of traditional design, and also as to whether a planned housing development made up chiefly or exclusively of these circular houses would be attractive to prospective home owners or tenants. THE AMERICAN CITY hopes to present in an early issue a further discussion of this subject, illustrated with sketches of planned group developments.



LEFT: *Scale model, roof and ceiling removed.*
RIGHT: *One of the two bedrooms.*

Los Angeles Again Pioneers in Zoning

Some highlights of the new comprehensive zoning ordinance adopted by the City Council of Los Angeles, March 7, 1946

By EARL O. MILLS
Planning Consultant
St. Louis, Mo.

ALTHOUGH one of the earliest cities in the United States to recognize the importance of zoning as a method of controlling land uses in the public interest, Los Angeles has not in recent years kept pace with current progress in such legislation.* That lack has now been remedied by the adoption, on March 7, 1946, of perhaps the most comprehensive and progressive zoning ordinances in the nation.

The purpose of the present article is to point out a few features of the new regulations which may be of special interest to readers of THE AMERICAN CITY.

The new comprehensive zoning ordinance embraces 16 zones, namely: 2 agricultural, 1 suburban, 5 dwelling, 4 commercial, 1 central business, and 3 industrial. Each zone (or district) is under a separate section of the ordinance and embraces all of the use, height, and area regulations pertaining thereto, save for certain general provisions and exceptions. Further, all regulations, including the use regulations in the commercial and industrial zones, are listed as "positive" and not "negative" as is the case with respect to business uses in most zoning ordinances.

Agricultural Zones

One of the more significant innovations in the new ordinance is the zoning of the San Fernando Valley, which comprises an area of 212 square miles —equivalent in size to the city of Chicago. About 75% of the area is now in agriculture, and at least 75% is in holdings of 2 acres or more, and 65% in holdings of 5 acres or larger. Conveniently located throughout the Valley area are 14 urban centers, varying in population from 187 to 71,000. Consequently, few (if any) large cities possess so excellent and timely an opportunity to do advance planning and direct new growth.

The existing urban areas in the valley have been comprehensively planned by the Planning Commission, and generous provision is made for the future urban expansion of each. The remainder of the valley beyond the urban areas is under three new classifications, known as "A1" and "A2" Agriculture, and "RA" Suburban. These several classifications, incidentally, apply only in the valley and carry minimum lot area requirements of 5 acres, 2 acres, and 20,000 square feet, respectively.

Dwelling Districts

Among the more significant provisions for the several "R" Dwelling Districts are: (1) the prohibition of so-called "home occupations" except as transitional uses; (2) the required approval of the City Planning Commission for the location of schools and churches in the "R1," "R2" and "R3" Dwelling Zones, and (3) the permission of a transitional use on the first lot in an "R1," "R2" and "R3" Zone which adjoins a commercial or industrial zone, *i.e.*, (a) a dwelling permitted in the next less restricted district, such as a two-family dwelling on the first lot in an "R1" One-Family District; (b) a home occupation, or (c) a public parking area under certain specific limitations, such as observing side yards, erecting masonry wall, paving, landscaping, and the like.

Population Densities

Population densities under the new ordinance range from 2½ acres per family in the "A1" Agricultural District to 800 and 400 square feet respectively in the "R4" and "R5" Multiple-Family or Apartment Zones. Under the old ordinances, only two districts had density regulations—the "R1.5" Two-Family and the "R2" Four-Family Districts. Although an analysis of existing apartment development revealed that in some instances the provision of lot area per family was below 400 square feet, they were in the minority. Hence, in view of prevailing conditions, the minimum regulation of 400 square feet per family in the large apartment areas is regarded as quite liberal and in no sense unreasonable.

To be sure, more stringent density regulations would have been desirable; but in view of the fact there were no such regulations in the apartment districts under the old ordinances, it was felt that the foregoing requirements would prove practicable and beneficial, especially supplemented as they are with reasonable height limitations and ample yard space about buildings. As an illustration, in the "R5" Multiple Dwelling Zone the limit height of 150 feet or 13 stories, permitted under the city charter, is allowed, but the side yard requirements are such that a building erected to the maximum height would have to provide a minimum side yard on each side of the building of 19½ feet.

An auto parking space in a building is required for each dwelling unit in all dwelling zones; and off-street parking and loading spaces are also required for buildings other than dwellings, such as auditoriums, institutions, hotels, and so on. Detailed regulations for the control of various permitted name plates or signs are likewise included in all of the dwelling districts.

Commercial Zones

The commercial zones are varied in scope, the most restrictive being the "C1" Limited Commercial, which is intended to serve the immediate or local neighborhood needs. Since this use is intended and admitted only as a matter of neighborhood convenience, every precaution has been taken to alleviate so far as possible its depreciating influence upon surrounding residential property. For instance, the height of buildings, and the front, side, and rear yard requirements are the same as for the adjoining dwelling districts. Other limitations require the sale of new merchandise only; that business be conducted wholly within an enclosed building; that only signs flat against the wall pertaining to the use conducted within the building be permitted; and that all walls which face a street or residence zone shall be finished in a uniformly satisfactory manner.

The "C2" and "C3" Districts are alike as to use classifications, but differ

* A chronological summarization of the adoption of the city's various zoning regulations as included in a report prepared by Charles B. Bennett, Director, Los Angeles City Planning Commission, presents cogent evidence of the community's early efforts to control its development, but it also exemplifies in part some of the causes of the zoning dilemma in which the city eventually found itself. The accumulated complications appear to have been due primarily to two causes: one, the rapid population growth and a real expansion of the city, which at the turn of the century had but 43.26 square miles and 102,479 persons, as compared with its present 452 square miles and 1,772,580 population; and the other, the failure of previous city authorities to realize the full importance of appropriating adequate funds for comprehensive, long-range planning and zoning properly to direct that urban growth.

in height. The "C2" Classification is intended to adjoin the lower height multiple zones and the "C3" the higher multiple-dwelling zones. And similarly there must be a side yard on that side of a commercial lot which adjoins a lot zoned for dwelling purposes.

Off-street parking and loading space is required in all commercial districts.

Limited Industrial Zones

In Los Angeles, as elsewhere, there is an urgent need for such community uses as laundries, dry cleaning establishments, storage and distributing centers which are not a retail business, but rather fall more appropriately into a limited industrial classification. In most communities it is not uncommon to find such uses located along some of the more important business thoroughfares; consequently, it is preferable to set aside limited areas at strategic points, especially where such uses are already appropriately established. Accordingly, the new ordinance includes an additional industrial zone known as "M1" Limited Industrial.

Parking and Loading Space

The requirements for automobile parking space, loading space, and public parking areas have been worked out with great care, but are too lengthy to quote here.

Non-Conforming Uses

In the section pertaining to non-conforming uses, distinction is made between "non-conforming buildings" and "non-conforming uses." Aside from the customary provisions pertaining to the limitations upon restoration, vacancies, change in uses and the like, the ordinance carries what are believed to be some of the most progressive and equable methods yet devised for the gradual removal of non-conforming buildings and uses. A few of the more important provisions follow:

Expansion Prohibited: A non-conforming use of a building or structure conforming to the use regulations, shall not be expanded or extended into any other portion of such conforming building or structure nor changed except to a conforming use. In such a non-conforming use, any future use of such building, structure or portion thereof shall be in conformity with the regulations of the zone in which such building or structure is located. Provided, however, that all non-conforming uses of buildings or structures conforming to the use regulations shall be discontinued not later than 5 years from the effective date of this article.

Continuation of Use: The non-conforming use of land (where no building is involved), existing at the time this article became effective, may be continued for a period of not more than 5 years there from, provided:

(a) That no such non-conforming use of land shall in any way be expanded or extended either on the same or adjoining property.

(b) That if such non-conforming use of land or any portion thereof is discontinued or changed, any future use of such land shall be in conformity with the provisions of this article.

(c) That any sign, billboard, commercial advertising structure, or statuary, which lawfully existed and was maintained at the time this article became effective, may be continued, although such use does not conform with the provisions hereof; provided, however, that no structural alterations are made thereto and provided, further, that all such non-conforming signs, billboards, commercial advertising structures and statuary, and their supporting members, shall be completely removed from the premises not later than 5 years from the effective date of this article.

Removal: In all "R" Zones, every non-conforming building or structure which was designed, arranged, or intended for a use permitted only in the "C," "CM" and "M" Zones or in the "A" or "RA" Zones, but not in the "R" Zones, shall be completely removed, or altered and converted to a conforming building, structure and use when such buildings or structures have reached, or may hereafter reach, the ages hereinafter specified, computed from the date the building was erected. In the case of buildings defined in the Los Angeles City Building Code, as Class I and II, 40 years; Class III and IV, 30 years; and Class V, 20 years. Provided, however, that this regulation shall not become operative until 20 years from the effective date of this article.

A Problem of Human Engineering

From the very inception of the work on Los Angeles' new zoning ordinance, it was fully realized that the task entailed something more than drafting a new set of technical provisions; that there were "human engineering" problems as well as technical ones. For instance, in addition to members of the City Planning Commission and its staff with long years of zoning experience, there were many public officials, private organizations and individuals also thoroughly conversant with the subject of zoning and most of the existing regulations and practices, and consequently there was no dearth of individual ideas as to what should be done. Thus in order to benefit from all of the constructive suggestions available, the planning director and planning consultant, with the approval of the city planning commission, arranged and held many meetings with various department heads, governmental agencies, civic organizations and individuals, which, though requiring much time and effort, were found to be mutually advantageous; and in the long run these meetings greatly facilitated the necessary procedure leading to the official adoption of the ordinance.

As an indication of the cooperation and assistance solicited in the early formulation of the zoning ordinance, discussion meetings were held with such individuals and organizations as: the mayor, city council, planning committee of the city council, city attorney's office, building department, school board, various other department heads, Los Angeles County Regional Planning Commission, Federal Housing Administration, Civil Aeronautics Board, County Agricultural Bureau, County Farm Bureau, Downtown Businessmen's Association, Central Business District Association, Apartment House Owners Association, National Association of Home Builders, American Institute of Architects, Wilshire Chamber of Commerce, and various church groups. Six discussion meetings were held with the Civic Development Bureau of the Los Angeles Chamber of Commerce, and no less than nine meetings with the Los Angeles Real Estate Board and its various special zoning committees.

Many Meetings Held

Then, too, in connection with the planning and zoning of the San Fernando Valley, the planning director and the principal planner held more than twenty-two meetings with various chambers of commerce and civic organizations, extending over a period of approximately fourteen months.

In accordance with the procedure set forth in the state planning law, two separate public hearings on the proposed ordinance were held at the city hall by the city planning commission, one on January 25 and the other on February 6, 1945. Further, upon request, a special meeting for the valley was held at Van Nuys in February.

As a result of these many preliminary meetings and discussions, the ordinance was revised or redrafted seven times before submission to the city council for its official consideration, hearing and action. The real value of the planning commission's desire and effort to meet and harmonize, so far as was possible, all divergent but constructive ideas, was clearly reflected at the public hearing held by the city council, where almost without exception all of those in attendance were eager to speak in favor of the ordinance and its early passage. Hence, not only has the Los Angeles Planning Commission succeeded in securing the adoption of an exceptionally forward-looking zoning ordinance, but it has also demonstrated a "human engineering" technique that might well be emulated in other communities.

How a Small City Swimming Pool Might Be Financed

By MARTIN STERN
Executive Director
Swim for Health Association
New York, N. Y.

A STARTLING fact revealed by Army and Navy examinations in the recent war was that only 10% of our populace knew how to swim; that 12% to 15% were novices in the water who might stay afloat from 3 to 5 minutes in the event of an emergency; and that the rest could not swim at all.

These revelations are giving impetus to the movement for "living memorials" in the form of playgrounds, stadiums and swimming pools. In addition to these war memorials, the Swim for Health Association is advocating the construction of swimming pools as recreation centers, since more persons participate in the sport and recreation of swimming than in all other sports combined. Although many do not know how to swim, they enjoy the feel of the water and receiving the benefit of the sun's rays.

Many communities, however, which are desirous of constructing pools and playgrounds are financially unable to participate as municipalities in financing by ordinary methods a program of this kind. Their tax rates are at a point where there would be too much opposition from property owners uninterested in a sports and recreational program.

Selling 10-Year Advance Admissions

These communities, however, can adopt a plan that would not increase their indebtedness and, in fact, would attract business and additional residents to the community.

The plan is simple. What it actually amounts to is selling 10-year advance admissions to the pool and playground.

The city issues 10-year bonds with 10 non-interest bearing coupons. Each spring one of the coupons is redeemable for a season's pass to the pool. These bonds can be issued in three denominations—a $25 bond for children under the age of 6; a $37.50 bond for those between the ages of 6 and 16; and a $50 bond for all those over 16 years of age. This is in accordance with the standard practice of theaters and sports facilities, where one-half price admissions are charged for children under 14 or 16.

What father and mother with one or more youngsters in the kiddies and teen age group, would not participate in a plan of this kind? Arrangements can be made which would allow the mother to bring her youngster to the pool at an early hour each morning, which would give her time to do her shopping and house work and then join her child.

Business and Civic Groups Cooperate

In communities where there are large industrial plants, the size of the pool and budget can be increased. Most industrial organizations are interested in the welfare of their employees and, in many instances, would purchase the bonds in the name of their employees. This, particularly, would hold true if the city would make arrangements to set aside several hours each week for the use of the pool for these industrial workers.

In addition, civic groups such as the Rotary, Lions, Kiwanis Clubs and the Chamber of Commerce would assist the city in the sale of these bonds. Many of the business men and wealthy residents would make outright contributions to a campaign fund of this kind. This has been the case in many communities from coast to coast.

Those who could not afford to purchase one of these bonds, but who would like to use the pool and playground from time to time, would pay a nominal admission fee. This income would help defray the running expenses during the 10-year period.

At the end of the 10 years the voters would have an opportunity to decide if the operational costs of the pool would be incorporated into the general budget of the city or if a slight charge is to be maintained to cover the cost of its upkeep.

Yes, it is a simple but workable plan which can be adopted by every community in this country—a plan that would enable us to help build up the physical fitness of our nation.

Rainbow Hued Streets

By SOL. KATZ

I DO not know of any place where colors are used for street nomenclature in any orderly and planned scheme. In this connection I think I have a nice thought to offer which may be adaptable for some new development, or for a renaming plan. My idea is to use color names in an orderly manner, beginning with "A" and going through the alphabet as far as may be needed. There are enough colors and shades and tints to name a hundred thoroughfares. Naming them in alphabetical rotation would help make streets easy to locate.

All city or public markings and street designations could be carried out in a color scheme that would indicate the name of the street on which they are located. Thus Blue Avenue might have all signs, light poles, fire hydrants, baskets, etc. in blue.

All property owners whether business, or residential, could be urged when painting or decorating their structures to make the predominating color or decorative scheme emphasize the name of the street on which the building is located. This does not mean that on Orange Avenue everything should be smeared over with orange pigment. Not at all. That would be nightmarish. Every effort should be made to have the use of the predominant color artistic so that people will stop and admire and talk about it and come to see it.

The following list of color are usually available in outside house paints and paints suitable for trims, store fronts, and signs. A great variety of shades will be found for many of these; some manufacturers, for example, make three or four different greens. Use of varying shades might lend variety to the scene and permit more exercise of individuality in color schemes. If more colors are wanted, there is practically no limit to variations under a wide array of names—heliotrope, violet, rose, carmine, silver, bronze, etc—that can be obtained by mixing and blending the basic colors.

Colors Suitable for Street Names

Amber	Lemon
Black	Maroon
Blue	Orange
Brown	Pink
Canary	Purple
Gold	Red
Gray	Tan
Green	White
Ivory	Yellow

Behind Our Citys' Skyline

By RALPH BRADFORD
General Manager
Chamber of Commerce
of the United States

WE SHALL have to rid our minds of the notion, if we have ever held it with respect to our communities, that all is well in the best of all possible worlds. The skyline of every city in America is a magnificent illusion. We catch, with the towers and spires of our great buildings, the beauty and the glory of daybreak and of sunset. We swell with pride—and it is right we should. But what is behind the gorgeous set piece of the skyline? Is it always an emblem of progress, or is it sometimes only a colossal camouflage?

Now and then it is well for us to look in cold-eyed appraisal at the cities we serve and in the light of statistics, and of slums, and of illiteracy, and of open sewers, and of low public health standards and disgraceful social levels, shock ourselves into realizing how little we have done, and how much, how tragically much, there is yet to do.

Nationally, we need the same kind of objectivity. The truest patriot is not the man who shouts, "My country, right or wrong," but the one who humbly prays, "My country, God grant she may be right!" For consider: In world affairs we do veritably stand at an international crossroads. We have long since abandoned our former isolationism. The question now is not whether we shall be a part of the world, but how shall we best play the part that we must assume in the world's affairs? But before we can decide that question, we must decide what kind of a country we are going to have; and before that, we must reach a still more basic decision, namely, what kind of men and women are we going to be? . . .

This country and its cities can be made and kept by you and me and our children — provided we understand always that freedom is the priceless ingredient of any civilization; provided we are convinced that this nation, with all its vast expanse and richness of resource, is not greater, nor can be, than the moral stature of its people; and provided we realize that we have the task of leading ourselves as well as others back to certain simplicities and verities and decencies—all summed up in the word "character"—which are the only true foundations for greatness in any nation.

From Mr. Bradford's address, "The Business of Living," before the 1945 annual meeting of the National Association of Commercial Organization Secretaries.

Electronic Water Flocculation

Using charged aluminum sheets produces a dense, tough floc with many desirable characteristics

SUBSTITUTION of an aluminum hydrous oxide floc generated by passing an electric current through plates of aluminum suspended in water for the same floc developed from filter alum was offered as a possible refinement in water purification practice at the Four States Section meeting of AWWA at Baltimore recently. The method was described by Cecil A. Haney, Research Engineer for the Stuart-Brumley Corp., Baltimore, Md.

The electronic method, Mr. Haney explained, uses the easily precipitated trivalent aluminum ion for coagulation. Electricity precipitates this aluminum floc without the customary drop in pH that accompanies the use of filter alum because of the release of sulphuric acid.

"Electronic purification does the coagulating job exactly as alum does," said Mr. Haney, "and does it faster and with less technical control required. By dividing the water to be treated into 'slices of solution' we can increase the velocity of coagulation by the use of electricity, and produce floc formation within 45 seconds that can then be passed to a settling basin or removed by pressure or gravity filters."

The coagulating elements consist of aluminum sheets placed 0.125 inches apart, housed in a flow chamber which slices the water in thin films. As the sheets receive their electric charge, they eventually decompose, forming a type of aluminum hydrous oxide floc from the mineral content in the raw water.

Tests at Lyons, N. Y., by L. Lauster, Water Superintendent (using a 500 cc laboratory model consuming 39 watts) reduced water from a hardness of 388 ppm in $CaCO_3$ in ratios varying from 2 to 74 percent, with corresponding contact times of 5 seconds to 17 minutes, and with a consumption of electricity varying from 0.21 to 44.3 kw per 1,000 gallons. At Norfolk, Va., Fitzgerald, Hodges, and Beasley treated a soft water (approximately 20 ppm) and reduced the color from 90 to 10, using a 30-second contact time.

No Sneezing Here

HARRY A. EIELSON, Commissioner of Public Health and Safety of Springfield, Ill., has launched an all-out attack against ragweed and poison ivy. You may remember the Commissioner who received a lot of publicity way back in 1943 when he implemented a pre-election promise made by his two children and gave each of Springfield's 14,000 school children a dime for a war stamp.

Springfield and vicinity is overrun by ragweed; in the good Midwestern soil it grows to a height of five feet and over, much to the dismay of Springfield's numerous hay fever victims. An old home remedy—a cupful of rough salt and two tablespoons of lye dissolved in a gallon of water—served the purpose quite well, except for the fact that it attacked ragweed, shoes, and clothing with equal vigor.

This year, however, Commissioner Eielson got word of a new chemical product which proved to be the answer.* In Springfield it is applied with a sprinkling can and poured right on the leaves of whatever is to be eradicated; according to the Commissioner, a sprinkling can is a safer device than an automatic spray, because the fluid cannot be blown away by the wind into the eyes of innocent by-standers. For ragweed, hopweed, horseweed, and wild morning glory, eight parts of water were mixed with one part of the chemical. Within twenty-four hours the leaves began to wither and in seventy-two hours the plants were dying off; five days later the leaves were yellowish green and within ten days the plants could definitely be pronounced dead.

In the case of poison ivy, three parts of water to one part of the chemical were used. In forty-eight hours, according to Commissioner Eielson's report, the tips of the ivy leaves were curling and turned a greyish green. In seventy-two hours the leaves began to turn brown. After two weeks the chemical had penetrated the runners and the upper vine was dead. Commissioner Eielson, who is immune to both ragweed and poison ivy, went right in amongst the stuff, heading the extermination squad. He is very optimistic about the results, which already indicate a forty to fifty percent decrease of hay fever cases.

* Dolge Weed-Killer, C. B. Dolge Co., Westport, Conn.

How Expansion and Contraction Joints Act

Data from the Highway Research Board Research Report 3B covering studies in the two northern states of Minnesota and Michigan

Minnesota

EXPANSION joints do not appear to be necessary; in fact, their omission appears to be beneficial in preventing the development of undesirably wide openings in adjacent contraction joints.

Short panels, on the order of 15 feet, are desirable because they provide (1) a reduction in the width of individual joint openings, (2) a reduction in pavement roughness, (3) a reduction in warping stresses, and (4) a reduction in intermediate cracking.

The 7-inch uniform section and the 9-6-9 inch thickened section appear equally satisfactory so far as performance on the project studied was concerned.

Load transfer dowels do not appear to be necessary in dummy-type contraction joints spaced at relatively short intervals where expansion joints are omitted.

There appears to be no advantage in the use of a reinforced design involving relatively long reinforced panels in comparison with the non-reinforced short panel design. Furthermore, such a design has certain physical disadvantages in service performance because of greater changes taking place in joint openings.

Contraction joints spaced at intervals greater than 15 feet are very difficult to maintain when the usual types of asphaltic sealing compounds are used.

The average opening of contraction joints spaced at 15 feet in a stretch of pavement with expansion joints at one-mile intervals was less than 0.05 inches even after the pavement was four years old. This indicates that, on this section, the rate of infiltration of foreign material has been almost negligible.

Tests indicate that no serious compressive stresses have developed in the pavement because of temperature after four years of use. The indicated stress is only about 15% of the concrete's ultimate compressive strength.

Five faulted transverse joints were found on the project studied. The faulted joints all had the same characteristic in that in every case the high side of the joint was the side from which the traffic approached. The differential was zero at the slab centerline and about ¼-inch near the edge. None of the faulted joints contained dowels.

F. C. LANG*
Engineer of Materials and Research
Minnesota Department of Highways

Michigan

Concrete pavements undergo their greatest movement during the first year after construction. The magnitude of this initial movement and subsequent permanent displacement are sufficient to deplete the expansion space by at least 50%. The amplitude of the following annual movements is comparatively small, gradually diminishing with time in conjunction with the progressively increasing permanent displacement which takes place during succeeding years.

The annual or seasonal movement of sections with 10-foot slabs is less than that of sections with 60-foot slabs.

Contraction joints at 60-foot spacing opened approximately three times as much as did those at 10-foot spacing. The contraction joints acquire a slight permanent opening with time.

The ¾-inch dowel bar installations used at the present time for load transfer at expansion and contraction joints are not a guarantee against faulting of slabs at joints.

Joint sealing compounds composed of a proper combination of asphalt and rubber have proved to be the best type of joint sealer so far developed.

The practice of grooving the pavement surface to weaken the slab at contraction joints has several advantages over the method of inserting in the concrete a strip of premolded fiber for the same purpose. The common occurrence of joint edge spalling caused by improper placing of the premolded fiber strip cannot take place with the grooved joint; also the grooved joints when properly filled with a bituminous material provide a satisfactory seal both in summer and winter.

H. C. COONS
Deputy Commissioner, Chief Engineer
Michigan State Highway Department

* Mr. Lang died soon after preparing this report.

American Water and Electric Company Plans To Separate Interests

AMERICAN WATER WORKS and Electric Co., New York, N. Y., an important operator of privately owned public water supply companies, announced recently that it would segregate these enterprises into a separate company, completely disassociated from its electric and other utility operations.

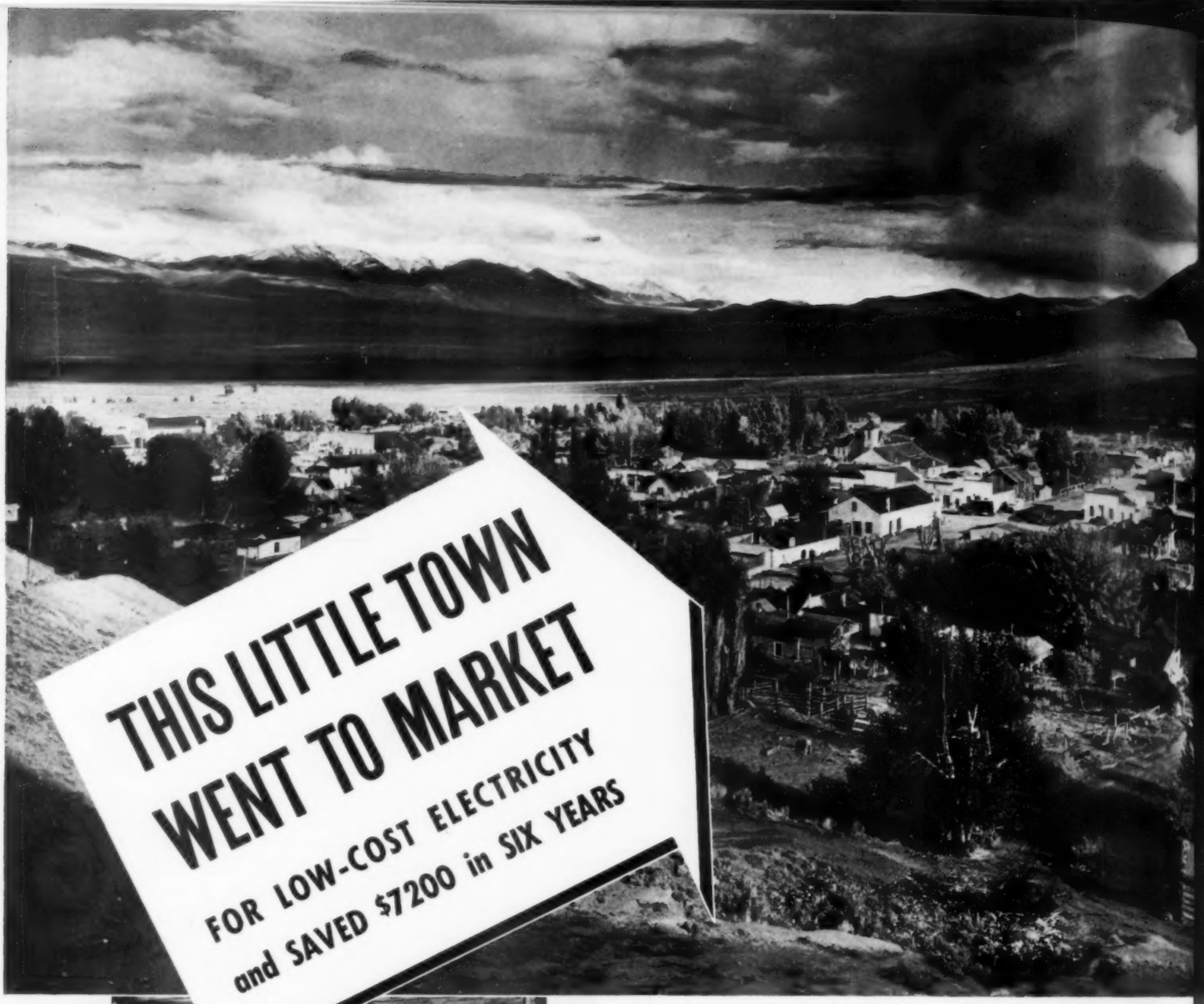
The segregation is being made in accordance with plans recently filed with the Securities and Exchange Commission, by which the American Water Works and Electric Co. is conforming its holding company system to the requirements of Section 11 of the Public Utility Holding Company Act of 1935.

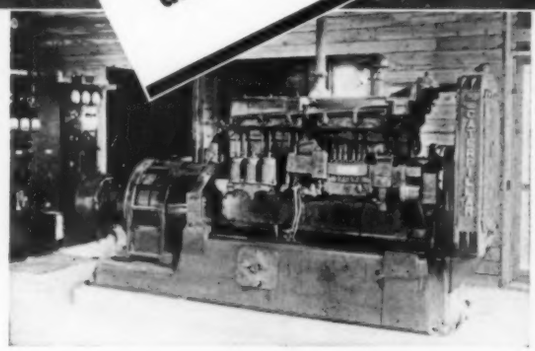
The new water works organization will be staffed by members of the present organization, many of whom have devoted their entire working experience to the field of public water supply. Operating personnel in the field will be unaffected by the proposed change.

Principal executives of the new company and its widespread operations will include the following, among others: Earle S. Thompson, Gilbert W. Chapman, George W. Biggs, Jr., C. H. Dickety, Lorenzo Semple, P. B. Niles, and J. H. Murdoch, Jr.

American Water Works and Electric Co., through a predecessor organization entered the field of public water supply in 1882. Its central service departments have been developed through the years to furnish expert and specialized services to its operating water works subsidiaries, including all phases of engineering, purchasing, legal, finance, personnel, industrial relations, public relations, and general management.

The American Water Works system now includes some 70 operating water supply companies, serving approximately 650,000 customers directly connected to their mains. Operations are carried on in 20 states. Among the larger cities served are Birmingham, Ala.; Peoria, Ill.; Chattanooga, Tenn.; Wichita, Kans.; and large portions of Pittsburgh, Pa.





Challis, Idaho, is typical of thousands of towns. Here, too, reduction of light-and-power costs was often discussed. But here the municipal leaders did something about it.

In May, 1939, a "complete-package power-plant," consisting of a "Caterpillar" Diesel D13000 Engine and direct-connected 60-kw. generator, was installed as mainstay generating equipment to provide electricity for Challis' 900 population.

Six years later, after more than 50,000 hours of actual running, the cost records *showed savings in fuel and maintenance of approximately $1200 a year,* as compared to the power previously used. Electric rates almost invariably take a tumble when "Caterpillar" Diesel power takes on the generating job. Fuel consumption is low. Maintenance is negligible. And the life of these sturdy engines is so long that depreciation is spread thinly over many thousands of operating hours.

How about low-cost "Caterpillar" Diesel-generated electricity for your town? Your "Caterpillar" dealer will be glad to give you facts and figures.

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

CATERPILLAR

REG. U.S. PAT. OFF.

DIESEL ENGINES

Tractors • Motor Graders • Earthmoving Equipment

The discharged veteran wears this emblem. Remember his service and honor him.

Sewerage and Sewage Treatment Planning

Sewerage and sewage treatment occupies a high position in post-war public works activities. These municipal FWA-assisted projects constitute an important backlog of projects ready for construction when needed. We list those whose estimated costs run over $80,000.

Alabama

City	Cost
Alexander City	$104,050
Andalusia	105,000
Anniston	1,187,036
Arab	108,120
Auburn	254,242
Bessemer	290,150
Brewton	413,893
Fort Payne	130,060
Gadsden	227,915
Geneva	86,000
Homewood	334,800
Lipscomb	112,156
Marion	196,083
Mobile	831,790
Mountain Brook	145,644
Oneonta	112,618
Prichard	386,337

Arizona

City	Cost
Flagstaff	$86,150
Winslow	91,000

Arkansas

City	Cost
Benton	$140,000
Bentonville	101,200
Clarksville	131,673
Clinton	54,800
Earle	84,650
El Dorado	308,750
Fayetteville	115,449
Fort Smith	449,267
Luxora	55,600
Mountain Home	105,000
Wynne	98,600

California

City	Cost
Alameda	$460,000
Alameda County	9,192,810
Berkeley	335,000
Cayucos Sanitary Dist.	152,000
Corning	117,700
Dixon	89,600
Groveland	9,900
Los Gatos	316,000
Martinez	300,000
Morro Bay	152,907
San Luis Obispo	170,000
Santa Ana	280,000
Santa Monica	797,139
Tuolumne	92,200

Colorado

City	Cost
Fort Collins	$279,630

Connecticut

City	Cost
Ansonia	$243,850
Bridgeport	929,000
Derby	176,400
Middletown	179,400
New Haven	4,000,000
Norwich	1,204,500
Stratford	1,005,800
Wallingford	200,000
Westport	1,092,689

District of Columbia

City	Cost
Washington (Blue Plains)	$550,000

Florida

City	Cost
Chipley	$152,157
Daytona Beach	1,270,000
De Land	418,000
Fort Pierce	494,041
Hollywood	418,603
Lakeland	878,600
New Smyrna Beach	290,000
Ocala	248,500
Panama City	1,805,200
Sanford	220,000
Sarasota	1,246,000
Stuart	244,500
Tarpon Springs	309,216

Georgia

City	Cost
Albany	$318,000
Brunswick	214,300
Cairo	136,930
Camilla	158,460
Clayton	96,000
Cobb County	81,824
College Park	102,857
Decatur	130,000
Donalson	93,445
Statesboro	99,385
Waycross	526,877

Idaho

City	Cost
Hailey	$140,000
Pocatello	375,000

Illinois

City	Cost
Aledo	$86,600
Beckemeyer	101,000
Belleville	1,066,268
Bloomington	2,065,000
Bunker Hill	137,250
Bushnell	145,110
Cairo	400,000
Camp Point	96,000
Carlinville	252,500
Cicero	1,300,000
Collinsville	188,486
Creve Coeur	422,000
Decatur	302,670
Effingham	350,000
Fairbury	132,800
Galva	140,000
Harvey	1,083,000
Knoxville	150,000
Macomb	197,300
Martinsville	82,857
Mateno	156,200
Milford	125,000
Mound City	150,000
Mt. Vernon	468,614
Murphysboro	278,000
New Baden	154,500
Normal	385,000
Pana	178,480
Paris	424,616
Peoria	1,267,140
Peoria Heights	77,541
Pittsfield	90,000
Pontiac	300,000
Quincy	220,000
St. Clair County	800,000
Shelbyville	440,400
Streator	518,000
South Perkin	103,500
Troy	107,500
Vandalia	208,600
Villa Grove	158,150
Watseka	308,000
West Frankfort	264,280
Wood River	774,900

Indiana

City	Cost
Connersville	1,500,000
Crown Point	164,500
Decatur	430,000
East Chicago	1,465,240
Fort Wayne	628,050
Gary	760,155
Marion	370,300
Meridan Hills	208,500
Michigan City	294,700
Middlebury	117,850
Mishawaka	206,382
Monticello	92,700
New Carlisle	87,168
Noblesville	264,000
Odon	167,000
Tell City	224,500

Iowa

City	Cost
Carlisle	$97,727
Carter Lake	92,000
Casey	97,652
Jesup	111,000
Lamoni	84,000
Monroe	75,220
Windson Hts.	90,800

Kansas

City	Cost
Alta Vista	$57,800
Fort Scott	219,400
Greenleaf	81,000
Hoisington	115,100
Junction City	167,000
Kansas City	475,200
Leavenworth	200,606
Miltonvale	88,000
Sterling	90,660

Kentucky

City	Cost
Cynthiana	$89,418
Earlington	169,659
Florence	145,591
Georgetown	80,896
Glasgow	233,000
Greenville	179,688
Hazard	116,600
Jefferson County	1,472,700
Louisville	4,997,000
Leitchfield	107,700
Madisonville	216,017

Louisiana

City	Cost
Alexandria	$296,800

EXPIRED
5 10 15 20 25 30 35 40 45 50 55 60
1 HOUR
THE ORIGINAL CARL MAGEE PARKING METER
PARK-O-METER
FOR POLICE REGULATION SEE OTHER SIDE
0000

Now

A truly modern parking meter . . . requires only 30 seconds to reset to any desired time and coin combination.

Park-O-Meter is, therefore, the only meter which can remain permanently in service regardless of changes in parking regulations. It is *the one meter* which meets every operation need.

Write for complete information

Magee-Hale

PARK-O-METER COMPANY

Commerce Exchange Bldg.
OKLAHOMA CITY 2, OKLAHOMA

MACNICK COMPANY, *Manufacturers*
TULSA, OKLAHOMA

Bunkie	150,089
East Baton Rouge	2,635,579
Gueydan	177,591
Hammond	137,704
Jackson	66,600
Jefferson Parish	1,051,800
Jennings	176,000
Lafayette	475,000
Madisonville	82,867
Opelousas	251,220
Pineville	138,040
Ponchatoula	88,400
Rayville	132,994
St. Bernard	382,532
Ville Platte	240,303
West Monroe	249,068

Maine

City	Cost
Bangor	$560,000

Maryland

City	Cost
Crisfield	$300,080

Massachusetts

City	Cost
Chicopee	$987,196
Fall River	898,000
Franklin	155,000
Grafton	177,000
Marlborough	150,000
Monson	125,581
Taunton	488,000
Woburn	390,000

Michigan

City	Cost
Cadillac	222,000
East Jordan	99,160
Iron Mountain	267,000
Ishpeming	418,000
Kalkasha	92,800
Lincoln Park	512,000
Muskegon Heights	350,000
New Buffalo	150,000
Rogers City	309,000
Vermilion-on-the-Lake	98,430
Wayne County	2,974,500

Minnesota

City	Cost
Crookston	305,975
East Grand Forks	290,300
Hastings	208,025
Lindstrom	116,152
Rochester	1,540,800
Verndale	95,000

Mississippi

City	Cost
Baldwyn	$97,500
Bay Springs	101,700
Biloxi	342,000
Corinth	127,400
Gloster	130,646
Greenville	326,500
Gulfport	1,000,000
Heidelberg	101,250
Laurel	94,466
Lexington	183,596
Lucedale	120,000
Monticello	82,000
Moss Point	225,840
Philadelphia	229,610
Picayune	238,165
Pontotoc	150,000
Rosedale	150,000
Shelby	99,800
Summit	81,308

Missouri

City	Cost
Brentwood	97,800
Buffalo	113,000
Cabool	91,250
Camdenton	137,000
Chafee	88,500
Clinton	276,338
Columbia	1,000,000
Houston	97,500
Ironton	105,250
Kennett	86,604
Marionville	126,286
New London	90,200
Nevada	392,930
Palmyro	52,140
Perry	64,000
Portageville	83,500
Richland	128,500
St. Louis County	2,133,141
Sikeston	435,000
Slater	176,319
Thayer	132,000
University City	84,500
Vinita Park	114,560

Montana

City	Cost
Chester	$83,012
Fairfield	80,000
Hot Springs	87,500

Nebraska

City	Cost
Cambridge	$114,980
McCook	123,681
North Platte	350,000

Nevada

City	Cost
Sparks	$80,000

New Hampshire

City	Cost
Laconia	353,500
Portsmouth	179,790

New Jersey

City	Cost
Buena Vista	$160,000
Camden	5,437,433
Cliffside	332,700
Clifton	753,000
Hammonton	91,000
Linden	1,030,000
Passaic	208,860
Perth Amboy	300,000

New Mexico

City	Cost
Belen	$100,000

New York

City	Cost
Kingston	$180,000

North Carolina

City	Cost
Clinton	$120,000
East Spencer	90,000
Fayetteville	238,500
Newton	81,000
Norwood	94,575

North Dakota

City	Cost
Devil's Lake	157,400

Ohio

City	Cost
Akron	$5,118,000
Bellevue	410,500
Cambridge	191,250
Clyde	120,000
Franklin County	1,500,000
Fremont	456,500
East Liverpool	633,000
Ironton	265,500
Logan County	149,000
Milford	227,840
Newark	565,800
Ottawa	96,200
Portsmouth	96,058
St. Mary's	399,950
Sidney	267,000
Summit County	280,000
Tiffin	677,000
Warren	395,400

Oklahoma

City	Cost
Ada	$280,560
Boley	74,400
Buffalo	127,220
Carmen	90,529
Chickasha	150,000
Elk City	141,820
Enid	650,000
Guthrie	343,655
Henryetta	157,902
Mucogee	1,157,500
Oklahoma City	3,190,346
Wagoner	329,076

Oregon

City	Cost
Oregon City	$216,000
Milwaukie	163,397

Pennsylvania

City	Cost
Ambridge	$448,861
Beaver	168,000
Blakely	845,715
Freedom	100,000
Greensburg	917,500
Green Tree	262,500
Harrisburg	1,790,000
Hopewell Township	179,000
Lewiston	629,700
New Brighton	327,000
Northampton	100,000
Pittsburgh	927,229
Rochester	275,000
South Williamsport	225,300
Upper Moreland Twp.	111,800

Rhode Island

City	Cost
Jamestown	$119,267

South Carolina

City	Cost
Batesburg	$91,230
Charleston County	189,000
Fairfax	82,896
Manning	84,400
Moncks Corner	90,282
Myrtle Beach	157,920
St. George	108,510
St. Stephen	80,000
Sullivan's Island	190,000
Sumter	325,274
Timonsville	128,000
Union	437,000
Walterboro	208,000

Tennessee

City	Cost
Gallinburg	$154,200
Jackson	160,850
Murfreesboro	122,100
Nashville	1,428,355

(*Continued on page 133*)

CUT NIGHTTIME TRAFFIC ACCIDENTS

2 WAYS

1. WITH SIGNS HAVING FURTHER NIGHTTIME VISIBILITY

. . . AND WITH "SCOTCHLITE" YOU GET THESE ADVANTAGES AT A LOWER COST THAN WITH ANY OTHER TYPE OF REFLECTORIZED SIGN.

Yes sir, there are two ways to see traffic warning signs . . . One, as you go past them—and the other, the "SCOTCHLITE" way—*long before* you get to them.

Whether your speedometer reads 20 miles or 60 miles, it's this greater visibility that makes night driving safer. Sharp turns, curves or stop streets, every type sign can be seen and read at a glance.

Send coupon below for introductory order of "SCOTCHLITE" signs. Mail it today.

2. WITH SIGNS THAT RETAIN THE SAME SHAPE, SAME COLOR . . . DAY OR NIGHT

SCOTCHLITE
REG. U.S. PAT. OFF.
REFLECTIVE SIGN MATERIAL

-- **USE THIS HANDY ORDER BLANK**

Minn. Mining & Mfg. Co.
900 Fauquier Avenue,
St. Paul 6, Minn.
Dept. A.C. 4

Gentlemen:
Please send the "SCOTCHLITE" signs checked at right:

Name _____ Title _____

Address _____

City _____ Zone _____ State _____

NOTE: Quantity discount allowed only when signs are in same legend and design.

Quantity	Type	Cat. No.	Size	Price 1 to 4	Price 5 to 49
	S T O P	STP-101	24" x 24"	$6.25	$5.63
	No U Turn	NUV-134	18" x 24"	5.20	4.69
	*Arrow	TRN-117	24" x 24"	6.25	5.63
	**Speed Limit	SLM-139	18" x 24"	5.20	4.68
	S L O W	SLW-106	24" x 24"	6.25	5.63

*Specify direction of arrow ☐ right ☐ left
**Specify MPH wanted. _____ MPH

A New Charter for British Local Government Service and Salaries

TO IMPROVE both the status and standards of local government, the British National Joint Council for Local Authorities' Administrative, Professional, Technical and Clerical Services has adopted, effective April 1, 1946, its long-discussed "Scheme of Conditions of Service."* Covering methods of recruitment, post-entry training and promotion, conditions such as hours of work, holidays, and sick leave, as well as salary scales and grading, this new charter is commended by the Council for adoption by all local authorities. Such adoption is expected to have far-reaching effects in enabling authorities to deal with their staffs on a basis which will mark the local government service as offering a career likely to attract entrants of the type required to meet the future needs of local government.

Recruitment and Promotion

Under the new regulations, recruitment of all local government employees is to be by examination only; there will be two stages, (a) a qualifying test, to form a field for future selection, and (b) a competitive test (including interview) to select the number required from the field of those who have passed the first stage. Having thus carefully selected the new recruits, post-entry training begins; there are provisions for mobility of junior staff between various departments, encouragement of attendance at part-time classes, and facilities for acquiring knowledge of local government and its problems, as well as the acquisition of administrative, professional, and technical qualifications.

An important proposal affecting efficiency and promotion is the institution of annual reports upon all employees, beginning from the time of entry, with special assessment reports at ages 21 and 26. Under this system, juniors will know that there will be an annual appraisement of their work, conduct and progress, and senior officers—who will make the appraisement—will take a close interest in their juniors. Promotion according to scale to the maximum of the basic grade (the General Division) will be dependent upon satisfactory special assessment reports at ages 21 and 26. Subsequent promotion, i.e. to the Clerical Division or other higher grade, will be dependent upon passing a promotion examination (for which the National Council is making preparation) or securing the appropriate administrative, professional, or technical qualification.

Rates of Remuneration

The foregoing arrangements are designed, it will be seen, to raise the standard of the service. The scheme then sets out salary scales. These have been fixed after considering existing scales in comparison with rates of remuneration in comparable occupations and after reviewing changes in remuneration generally. This, the National Joint Council points out, is in accordance with the fair wages principle; local government should not take the lead in determining salary standards, but should be in the "first fight of good employers." The salary scales, with their accompanying gradings, afford the flexibility necessary for the various classes of duties to be performed.

An important section of this Scheme of Conditions of Service has to do with official conduct. Here are the concluding paragraphs:

"The first duty of a local government officer is to give his undivided allegiance to the authority employing him. With his private activities the authority in general is not concerned, so long as his conduct therein is not such as to bring discredit upon the service in which he is an officer. For that conduct public service is entitled to demand the highest standard.

"The maxim laid down for a court of law, that it is of fundamental importance not only that justice should be done in it, but that it should manifestly and undoubtedly be seen to be done, applies with equal force to the local government officer. Public confidence in his integrity would be shaken were the least suspicion, however ill-founded, to arise that he could be in any way influenced by improper motives.

"From this it must follow that the local government officer, as a public servant, must not only be honest in fact, but must be beyond the reach of the suspicion of dishonesty.

"He is not to subordinate his duty to his private interests; or to put himself in a position where his duty and his private interests conflict. He should not make use of his official position to further those interests; but neither is he so to order his private affairs as to allow the suspicion to arise that a trust has been abused or a confidence betrayed.

"He should be courteous to all with whom his duties bring him in contact.

"The public expects from the local government officer a standard of integrity and conduct not only inflexible but fastidious. It is the duty of the service to see that the expectation is fulfilled."

*Available upon application to Haden Corser, F.R.S.A., Joint Secretary (staffs), 24 Abingdon St., London S.W. 1.

The Park Arboretum as a Living War Memorial

(*Continued from page* 92)

memorial," beneficial to the people living in the area and attractive to visitors.

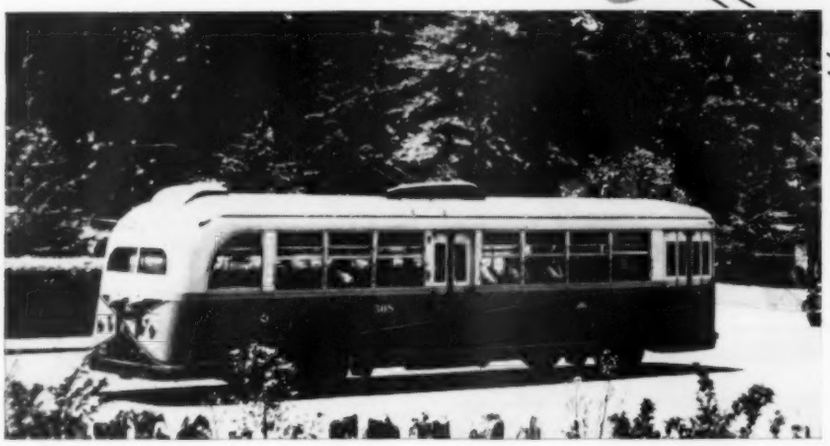
It is obvious that if a community does not have an arboretum near it in some neighboring town or city, the need is greater than if one were situated close by. Even if the community is not sufficiently large to afford a full-time trained horticulturist, the arboretum can be so constituted as to be a very important part of the local community. The committee responsible for the formation of a park arboretum should be made up of the best personnel available in the town, for it is obvious that sufficient funds should be raised at the start of the project to insure adequate income annually for its proper care.

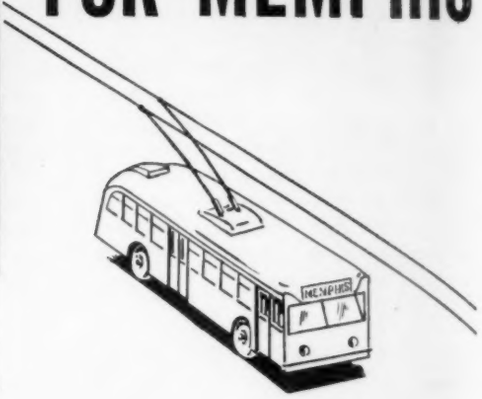
Continual, consistent and intelligent care is essential, and this should be provided for by special endowment, or by cooperation with some local college or university, or—as a last resort—with the community park department. The site should be carefully chosen, the area planted by experts after a thorough study of the needs of the community, and annual funds supplied for proper operation.

If these things are thought out and planned for properly, then the park arboretum can be the center of interest in the community, a source of much valued information for all property owners, and a living memorial which can serve the community permanently as a source of beauty and inspiration.

There is available a very limited number of copies of a pamphlet written by Dr. Wyman on the subject of the "Park Arboretum—How to Establish One as a Living War Memorial." In this, specific recommendations are given on ways and means of planning for an arboretum, what to plant, how to plant, the approximate costs of running, the amount of equipment necessary, the amount of expenditure for labeling and mapping and additional costs. This is one of the issues of *Arnoldia*, published May 18, 1945, and is available at 25 cents a copy from The Arnold Arboretum of Harvard University at Jamaica Plain, Mass.

120 NEW TROLLEY COACHES FOR MEMPHIS





The Memphis Street Railway Company, now operating trolley coaches on four main transit routes, will convert its remaining street car lines to this modern, speedy service. Four lines are involved, and when the changeover is completed approximately 68 round trip miles of route and 120 new coaches will be added to the system.

Silent, rubber-tired electrics have done an outstanding transit job in Memphis. The original installation was made on the Lamar line in 1931. A substantial increase in riding was apparent from the day service was begun. It was soon found expedient to extend the line and purchase additional coaches.

By 1939 the system's 14 40-passenger coaches had established such a satisfactory record that it was decided to expand this service. In 1941 Memphis was presented with a greatly enlarged system. The company was operating 63 trolley coaches over four main routes totaling 61.25 round trip miles.

Further expansion brought the system to its present operation of 84 coaches and 62.75 round trip miles of route. But modernization does not stop here. Conversion of the city's remaining street car lines to trolley coach operation, and the purchase of 120 new coaches is the next step toward expanding this popular service.

Trolley coaches are replacing the city's remaining street cars because both the public and the management like them. **THEY HAVE UNUSUAL RIDING APPEAL AND HAVE DEMONSTRATED THEIR SUPERIORITY OVER ALL OTHER URBAN TRANSPORTATION VEHICLES IN OPERATION AND IN EARNING ABILITY.**

2682-T

Ohio Brass
MANSFIELD, OHIO
Canadian Ohio Brass Co., Ltd., Niagara Falls, Ontario

Municipal Law Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS, Washington, D. C.
Charles S. Rhyne, Executive Director

Advertising—Use of Unexpended Funds for—Anticipated Taxes

In action against city to recover certain advertising expenditures, held that unexpended funds budgeted in prior year for advertising purposes, and amounts collected as back taxes for prior years levied for advertising purposes, were available for payment of advertising expenditures included in city's new budget, where unexpended funds and back taxes were unincumbered and together with anticipated taxes would produce sufficient amount for all proposed expenditures under new budget. *City of Tucson v. Tucson Sunshine Climate Club*, 164 Pac. (2d) 598 (Ariz., Dec. 21, 1945).

Bookmakers—Taxation Investigation —Immunity from Questions

Where a legitimate business man may be lawfully questioned as a witness for the nonpayment of municipal tax in course of investigation by commissioner of investigation of City of New York, held that equity will not confer upon a bookmaker an immunity from answering same questions when addressed to him as a witness provided questions did not violate constitutional rights. *In re Bromberger, Com'r of Investigation*, 58 N. Y. S. (2d) 758 (N. Y. Sup. Ct., N. Y. Co., June 29, 1945).

Children—Drowning of in Public Park When Presence Prohibited

In action for damages resulting from death by drowning of plaintiff's son, held that a city engaged in constructing a public park in which children were yet prohibited from playing by police rule was not liable in damages for drowning of 10 year old boy in lake on premises, which though artificial, was essentially like a natural lake and at which no facilities for bathing were provided, since child was not an invitee and attractive nuisance doctrine was not applicable. *City of Mangum* v. *Powell*, 165 Pac (2d) 136 (Okla., Jan. 8, 1946).

Churches—Building Permits—Denial by City Council—Mandamus

In petition alleging that after full hearing and presentation of all pertinent evidence, city council denied building permit for church on ground that congregation would increase automobile traffic hazard, held that petition did not show any such abuse of discretion as would justify intervention of court in mandamus proceeding. *Zion Evangelical Lutheran Church of Detroit Lakes* v. *City of Detroit Lakes*, 21 N. W. (2d) 203 (Minn., Dec. 14, 1945).

City Employees—Death Caused by Statute Violation—Recovery

Where city employee participated in violation of penal statute by driving city tractor or towing trailer over public streets, knowing that trailer was not equipped with brakes as required, held that driver was in *pari delicto* with city, and hence widow could not recover against city or owner of trailer for driver's death from injuries sustained in accident caused by lack of brakes. *Downing* v. *City of Jackson*, 24 So. (2d) 661 (Miss., Jan. 28, 1946).

City Railways—Accidents Outside City Limits—Rules as to Negligence

In action against city of Dayton railway company for wrongful death, held that in operating cars of city railway outside municipality the same rules as to negligence and contributory negligence prevail as are applicable to steam railroads. *Grove* v. *City Ry. Co.*, 64 N. E. (2d) 429 (Ohio App., Dec. 14, 1945).

Contracts—Additional Compensation for Excavation Work

In action by contracting company for additional compensation for work performed pursuant to contract with city, held that a contractor entering into excavation contract was entitled to additional compensation for removal of boulders or rough material. *Frank Nordone Contracting Co.* v. *City of New York*, 59 N. Y. S. (2d) 256 (N. Y. App., Dec. 28, 1945).

Eminent Domain—Acquisition of Utility Outside City—Voter's Consent

Where city brought suit to condemn properties of power company lying in four counties, held that voters' consent to issuance of bonds for acquisition of property by condemnation may be given at an election after the court has assessed amount to be paid for property sought to be condemned. *City of Tucson* v. *Tucson Gas, Electric Light & Power Co.*, 152 Fed. (2d) 552 (U. S. C. C. A. 9th, Dec. 26, 1945).

Employment Agencies—Licenses—Construction of Statute—Legislative Intent

Where New York City Commissioner of Licenses for nearly two years gave statute regulating fees charged by employment agencies a construction exactly opposite from his present construction, held that legislative intention warranting such present construction should be clear and unequivocal so first construction should be followed until the matter is clarified by new legislation. *Faingnaet* v. *Moss*, 64 N. E. (2d) 337 (N. Y. App., Nov. 29, 1945).

Fires—Liability for Failure to Create Department—Disrepair of Water Flow Valve

Where city charter provided that city might construct and operate water works system and should maintain fire department, held that such provision did not render city liable for fire damages resulting from city's failure to create and maintain fire department and keep in repair water pressure and flow regulating valve near property destroyed by fire. *Steitz* v. *City of Beacon*, 64 N. E. (2d) 704 (N. Y., Dec. 7, 1945).

Food—Restaurants—Licensing Ordinance Valid

In action to recover damages for wrongful revocation of plaintiff's license to conduct a restaurant business, held that city, under provisions of home rule act and city charter adopted pursuant thereto, had power to regulate restaurants and other public places of like character including power to revoke licenses if reasonably pertinent to proper regulation. *Prawdzik* v. *City of Grand Rapids*, 21 N. W. (2d) 168 (Mich., Jan. 7, 1946).

Hospitals—Tax Exemption When Not Used Exclusively for Charitable Purposes

Where hospital permitted laboratory technician to use part of hospital's laboratory in discharge of his duty as hospital's employee and in carrying on his own business as technician, held that hospital building was not exempt from taxation as building used "exclusively for charitable purposes," notwithstanding hospital did not share in technician's profit and received no rent from technician. *Markham Hospital* v. *City of Longview*, 191 S. W. (2d) 695 (Tex. Civ. App., Nov. 14, 1945). *Reh. den.* Nov. 22, 1945.

Labor Unions—Dismissal of Policemen for Refusal to Resign from Upheld

In proceeding by member of city police force to review order of city's civil service commission approving petitioner's discharge by mayor and city commissioners on grounds of insubordination and acts tending to injure the public service based on petitioner's refusal to resign his connection with national labor union, held that judgment should be entered affirming commission's order. *City of Jackson* v. *McLeod*, 24 So. (2d) 319 (Miss., Jan. 14, 1946).

Liquor and Beer Licenses—Revocation for Permitting Gambling Devices on Premises

Where statute provided for revocation of liquor and beer licenses of persons who knowingly permit slot machines, roulette wheels, or other similar mechanical gambling devices or number jars or other devices for like forms of gambling to be used on licensed premises and providing for an injunction, held that such statute is not too vague and indefinite and does not deny due process. *State* v. *Coubal*, 21 N. W. (2d) 381 (Wis., Jan. 11, 1946).

Ordinances—Failure to Publish in Entirety

Where ordinance of town fixing salaries of municipal employees omitted from publication, except by reference to place of filing in public office, of a mass of tables and classifications comprising 32 printed pages, much of it because of its tabular and columnar format ill-designed for newspaper insertion, held that such omission did not invalidate the ordinance. *McKann* v. *Town of Irvington*, 45 Atl. (2d) 494 (N. J., Jan. 24, 1946).

Parking Lots—Validity of Acquisition by City of Off-Street Site

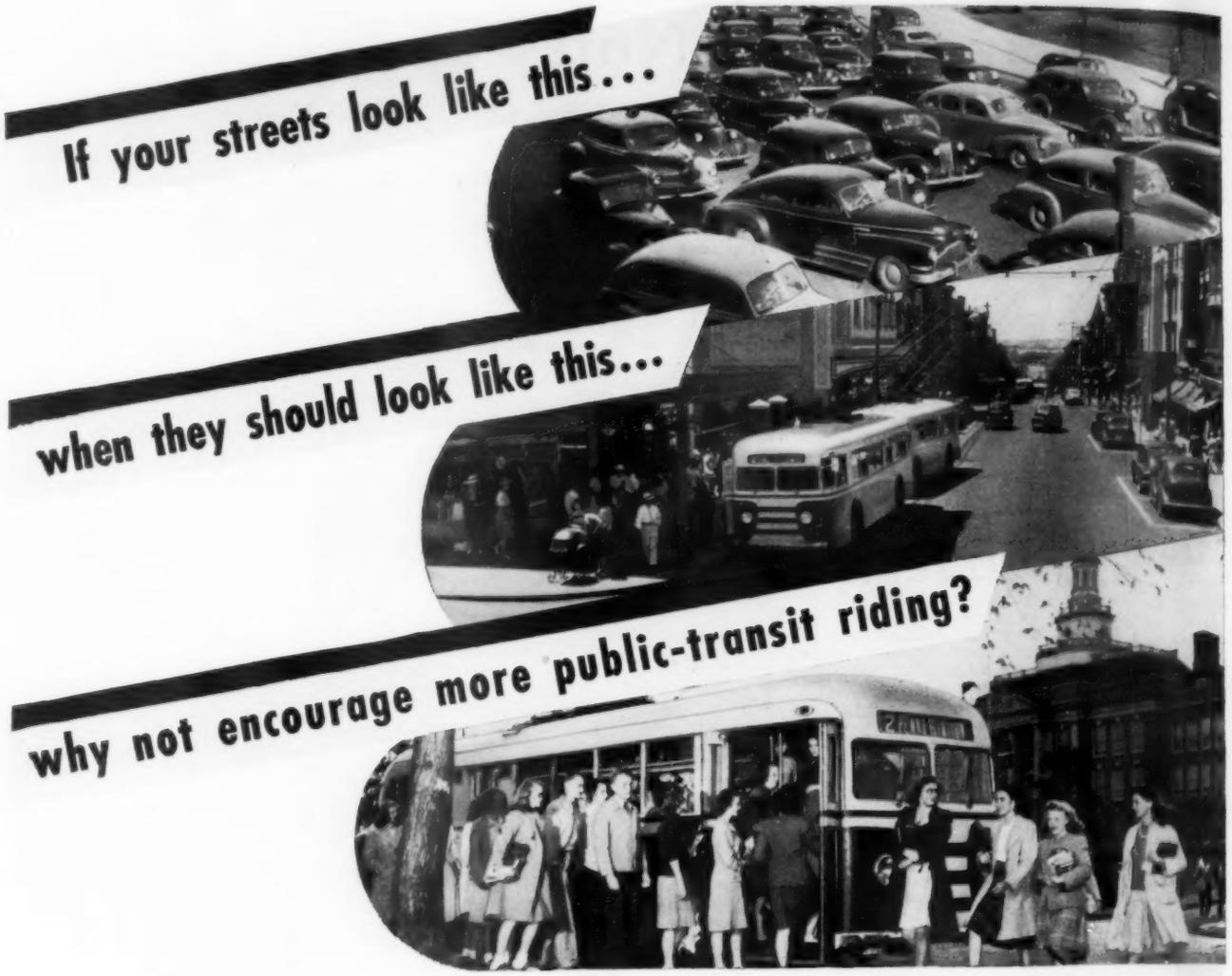
In condemnation proceedings to acquire property for municipal off-street parking lot for automobiles, held that acquisition and use of land by fourth class city for automobile parking lot was for a "municipal purpose" within statute authorizing such cities to purchase and condemn realty needed for municipal purposes. *Miller* v. *City of Georgetown; United Corporation* v. *Same*, 191 S. W. (2d) 403 (Ky., Dec. 21, 1945).

Policemen—Adequacy of Civil Service List to Meet Shortage

In action to determine respondent's right to act as city police officer, held that the City Council of the City of Beckley has no inherent nor granted power to appoint a privately paid "special merchant's watchman" who by virtue of that position has power to bear arms and make arrests within city's corporate limits, when the Civil Service Act provides a way of meeting emergency of failure of list of eligibles for vacancies in city police force. *State ex rel. Crouse* v. *Holdren*, 36 S. E. (2d) 481 (W. Va., Dec. 11, 1945).

Scavengers—Payment of by Householders—Lowest Bidder

Where, under village ordinance, no one other than licensed scavenger could remove ashes, garbage, or other refuse within village, and work costing about $75,000 per year was to be paid for by householders to scavenger at price fixed by village trustees, held that ordinance violated public policy that public work exceeding limited sum should not be awarded except on advertisement and to lowest responsible bidder. *McKim* v. *Village of South Grange*, 44 Atl. 784 (N. J. Sup. Ct., Dec. 10, 1945).



Here's why every new transit rider means a reduction in traffic congestion, an increase in accessibility. When John Jones rides in a street car, trolley coach or bus, he uses only 70 square feet of street space, no parking space. When riding in an automobile, he uses 500 square feet—seven times as much—and he needs almost as much space for parking as he needs to do his work.

As more and more people ride in transit, urban transportation is better able to serve its primary purpose—moving people, rather than vehicles. There are fewer traffic jams, less parking headaches. Existing street space is used more efficiently, minimizing the need for costly street widening. Retailers, property owners, transit and automobile riders, factory and office workers—everybody benefits when people and goods can move swiftly and easily through your city streets.

Because of their many ride-appealing features, trolley coaches are steadily winning more and more people over to the transit riding habit. For the easy way they pull up to the curb to load and unload, they get a big vote of thanks from old and young alike. Most popular of all surface vehicles, these electrics accelerate so fast and smoothly that riders are hardly aware of motion. They're maneuverable, clean, and quiet—that's why trolley coaches are preferred by the public.

That's why you can minimize traffic congestion without incurring enormous costs for street widening. By working closely with your transit company, you can obtain the best in urban transportation at lowest cost to riders and taxpayers. *Apparatus Dept., General Electric Company, Schenectady 5, New York.*

Have you seen
LIFESTREAM OF THE CITY
the new movie on urban transportation?
Ask your G-E representative how you can arrange for a showing.

GENERAL ELECTRIC

Traffic Control and Facilitation

Parking Plan to Restore Baltimore's Downtown Values

Multi-deck garages and parking meters recommended

By P. ROSS BUNDICK
Chairman, Commission on City Plan

THE LOSS of property values in downtown Baltimore, Md., of $60,000,000 since 1931 to the present assessable basis of $115,000,000 reduced the city's tax yield (at a $3 tax rate) by $1,800,000 per year.

A principal contributing factor to this reduction was the increasing inaccessibility of the area. Difficult to reach! Difficult to park!

Present off-street parking spaces in lots and garages are between nine and ten thousand. The 5,000 needed new off-street parking spaces in proper locations would cost approximately $8,500,000. Undoubtedly they would reverse the trend of downtown values and business.

In the passing years, including the period of declining taxable basis, the city has reduced assessments on structures in downtown Baltimore, while maintaining relatively high assessments on land sites. That policy has encouraged tearing down of structures to utilize the site for street level parking lots commonly known as "taxpayers."

Extension of these "taxpayers" has promoted blight, whereas the problem as indicated is to get 50% more cars accommodated off-street, while at the same time considerably improving the contiguous area. More lots will not solve the problem because sufficient street level space cannot be found close enough to the public's objectives.

Recommended Solution

The best solution would be the construction of multi-deck parking garages. These must be the enclosed type, of an appearance to improve, not depreciate, adjacent property, and they must have enough decks or floors to accommodate a maximum number of cars to the plot area and, where feasible, combine stores, markets, or other revenue-producing facilities.

Estimates indicate that if such multi-deck garages are fully assessed they will probably not yield enough final profit to make their construction an investment. In that case we might have to turn to municipally financed and operated facilities. Possibly an in-between course could be followed to encourage private investment—by the non-assessment for a period of years of the "new improvements" or deck superstructures on parking lots.

Adequate and permanent solutions via private capital funds are blocked by:

(a) High cost of sites in the proper locations.

(b) Inability to collect land required from numerous owners involved.

(c) Lack of return on normal investment required for proper facilities.

(d) Danger of damaging competition from nearby "distress" properties converted temporarily into unregulated parking "lots."

City government, property owners, and operating businesses must agree to create a parking authority (or similar device) to solve these problems on a permanent basis.

Location of Facilities

The public will only walk two to three blocks from a short-time parking location without irritation and resistance. All-day parking facilities can be located at greater distances and should in general be at or near the perimeter of the shopping and business district. Therefore, the best located or "close-in" facilities should be favorable (by rates charged) to the short time parker. Turnover should be stimulated (by stiffer rates) after three hours.

Parking meters serve to regulate the curb parking permitted in any section. Alone, the curb-supply can never solve the demands to park. It does, however, reduce the total of off-street facilities needed.

Let's Not Tax the Bicycle

By ROLAND C. GEIST*

THIS article is in answer to "Bicycle Ordinances in Pennsylvania" appearing in the January 1946 issue of THE AMERICAN CITY. I feel that a sound case can be made out against the licensing and taxation of bicycles, briefly outlined as follows:

1. No other non-motorized user of our highways has been singled out for taxation and licensing. No city planner would even think of taxing and licensing the saddle animal, the horse-drawn vehicle (unless peddling), the roller skater, the hiker, baby carriage, etc.

2. It has never been proved beyond a reasonable doubt that taxation and license plates will make operators more careful. Will the auto driver exercise more care when passing a bicycle with a plate than one without a plate? Professional thieves steal autos with plates, would they not also steal bicycles with license plates?

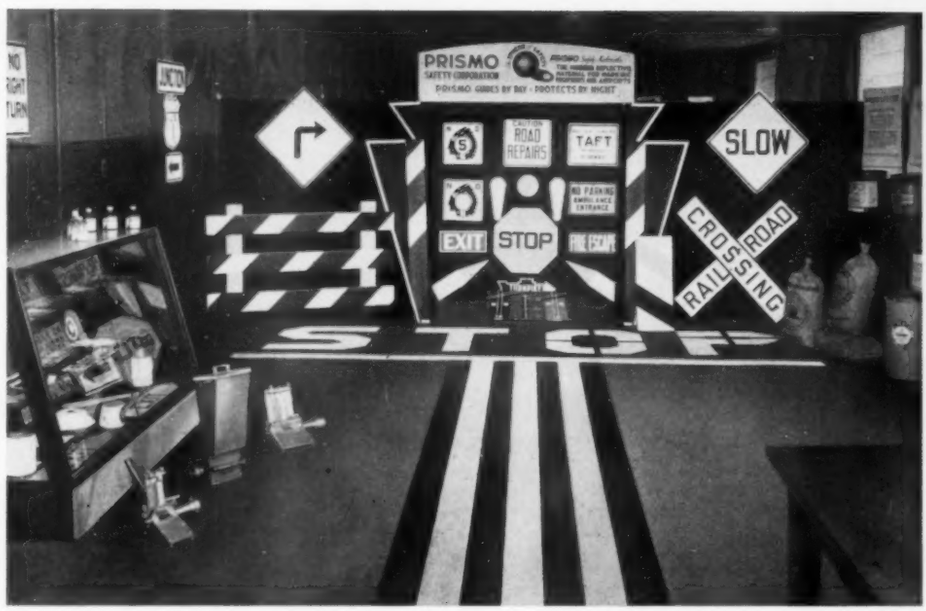
3. The tax of 50 cents a year may be prohibitive to a poor child. No one would think of taxing a child's baseball bat or glove.

4. The registration of the bicycle, testing for driving license, checking of brakes, wheels, handlebars, etc., would consume much time and energy of police and safety officials who are already burdened. Is all this testing necessary? We seldom do it even for complex and powerful motor vehicles. An intoxicated person cannot mount a bicycle but he can operate a motor vehicle with ease. Let our police warn speeders, control traffic, stop drunken drivers, prevent hi-jacking, etc., instead of inspecting "kiddie cars."

5. Over 60,000 members of the Cyclists Touring Club have gone on record against taxation and licensing of bicycles in England. Governmental

* Ex-Captain of the Century Road Club Association of New York, Chief Consul in the U. S. A. for Cyclists Touring Club of England. Author of "Bicycling as a Hobby," Harper and Brothers, 1944.

PRISMO



1

THE PRISMO SIGN KIT is used the nation over for the reflectorization of all signs and markers and in general sign shop practice. One complete standard kit reflectorizes up to 3,000 square feet of signs. (The Junior Kit—600 square feet.) For downright versatility packed with the lowest reflectorizing economy, specify and use the Prismo Sign Kit. Details outlined in Bulletin 244 available now!

2

PRISMO LIFELINE—The modern reflective material for highway, road and street markings. Lifeline is a packaged product which has proven itself over many years of successful use. Dispenser Service is a part of the Prismo Lifeline packaged material. Prismo is standard in many states, cities and counties for all danger points, including no-passing zones, fog-lining and municipal marking.
Write for Bulletin 461.

PRISMO SAFETY CORPORATION

MUNICIPAL DIVISION

HUNTINGDON, PENNSYLVANIA

officials have weighed this matter carefully and have decided not to tax and license bicycles.

There is no conclusive proof that taxation and licensing will make for road safety. Every bicycle has a number on the frame for identification which is not as easily removed as an attached plate in case of theft or loss. A safety campaign with a safety certificate may prove more effective than a tax or a number.

What Schenectady Will Do to Handle Traffic

"HOW'S Traffic In Your Town?" was the title of a short article on this page of THE AMERICAN CITY for November 1945. Fred W. Fisch, Director of the Bureau of Traffic and City Planning, Schenectady, N. Y., responded with a pamphlet just issued by his department entitled "Traffic and Transit Improvements" which sets forth the policy and program adopted in Schenectady.

The pamphlet foresees increased motor vehicle registration, more vehicle mileage on city streets, more in-town truck movement, and other congestion factors imposing upon existing street systems.

Existing major streets will have to accommodate most of the movements of people and goods. Existing thoroughfares connecting places of residence, recreation, commerce, and industry constitute a network, which if modernized, would provide greater traffic capacity, smoother flow, and more safety. Such modernization, consisting of relatively inexpensive street improvements plus traffic engineering control measures and adequate police supervision and direction, can be accomplished speedily and at reasonable cost. The street improvements cover resurfacing and repair of major streets, extension and straightening of thoroughfares, channelizing of wide thoroughfares, redesign of important intersections with wider approaches, and modernization of street lighting.

The traffic control program covers modernization of traffic signals, standardization of signs, establishing "Through" and "One-way" streets with "steady flow" the watchword for all major streets. Also planned are segregation of different types of traffic, fewer left turns, and facilities for pedestrian movement.

The transit improvements cover modernization of equipment, organization of routes, and properly located and covered transfer and waiting stations at heavy loading points.

Signals, Signs, and Markings in St. Louis

POST-WAR improvements needed in St. Louis, Mo., according to the 1944-45 report of the Department of Streets and Sewers, include 28 intersections at which traffic signals should be installed, and revamping of two synchronized traffic flow arteries, using thirty new controllers to replace obsolete and worn-out equipment.

During the last year, regulatory signs have been maintained very efficiently. The use of Scotchlite as a substitute for reflector buttons on reflector signs has been continued on a larger scale. By processing the word "stop" on a strip of Scotchlite affixed to a strip of fall-off steel and bolting this on regular reflector button stop signs, these signs have been made serviceable at a time when reflector buttons could not be purchased. Scotchlite has also been used to make some new stop signs.

There are 104 intersections at which Armor-Flex blocks have been used in marking crosswalks and lane lines and roadway messages. According to Arthur C. Meyers, Director of Streets and Sewers, this work is highly satisfactory because maintenance work can be done adequately with a minimum amount of labor and material, and paint crews can paint a greater number of school crosswalks and maintain them properly.

New Public Transit for Brooklyn

GENERAL CHARLES P. GROSS, chairman of the New York City Board of Transportation, is planning a $37,645,000 modernization program calling for the construction of new depots, shops, car barns and garages, as well as the purchase of approximately 1,600 new surface vehicles for the borough of Brooklyn, where the transit system is entirely owned and operated by the city.

Of the 45 street car lines now operating in the borough, the Board is planning to retain twelve and operate them with modern streamlined street cars. Another thirteen will be converted to trackless trolley coach operation and ten to gas or diesel bus operation. Seven lines will be discontinued, but carefully planned new routing with new modern vehicles will give the passengers formerly serviced by these lines better service than before.

When the original rehabilitation of Brooklyn's 50-year-old street cars was undertaken in 1936, one line was equipped with new streamlined PCC cars. After extensive surveys in many other cities, 435 trackless trolleys were purchased.

In his report General Gross said that the trackless trolley coach "is the most quiet vehicle in operation on the public streets, and it permits high rates of smooth acceleration and free running

The Locust Street-12th Boulevard intersection is one of the 104 in St. Louis which are marked by Armor-Flex blocks.

At the Delor Street crossing, St. Louis, Armor-Flex blocks warn of the Oak Hill railroad tracks ahead.

Today, light is so much a part of living

MODERN living is active living. And in most communities many people work, or play, 'round the clock.

They need modern municipal services 'round the clock, too . . . to guide, comfort and protect them whenever they're away from home.

This means good street lighting . . . a civic improvement the voters can see.

Good street lighting returns so very much for every dollar invested that no one who owes his present, or future, to the will of the people should overlook its good will building possibilities.

It reduces night traffic accidents, cuts crime, enhances real estate values, increases civic pride, encourages night window shopping, and in general helps build a more prosperous community.

If you have not already inaugurated a street lighting improvement plan in your town, get in touch with your local electric utility company and ask its aid in surveying your needs.

Then, with a program based on the findings of such a survey, recommend progressive street lighting improvement spread over the next two or three years.

You'll be surprised how easy it is to gain support for your ideas once all their benefits are made known.

As an additional aid, write for a free copy of the new I.E.S. Street Lighting Code. Address The Street & Traffic Safety Lighting Bureau, 155 East 44th St., New York 17, New York.

GOOD STREET LIGHTING • THE SIGN OF A GOOD PLACE TO LIVE

speeds with adequate braking and a high degree of safety in operation. It can be maneuvered into the curb to take on and discharge passengers the same as the gas buses do."

Houston's Traffic Safety Program

DURING 1945 the Houston Police Department placed much emphasis on traffic safety. This is evidenced by the establishment of the Accident Prevention Bureau and assigning of six officers and two clerks to carry on a program, and by the starting of the white safety fleet, by assigning two cars to the bureau, and by plans to increase it to ten.

Equipment purchased to carry on a prevention program included a 16-mm sound motion picture projector, slide film projector, public address systems, both for the cars and for auditoriums, and sound films.

Twenty-five large pictures, 36 x 36, of serious accidents were used in preventative work. Lectures in schools related how a certain violation of the law caused a death. Film trailers were purchased by the department and were shown in all the theaters. The Accident Prevention Bureau compiled facts about accidents and arrests. These facts were published each month and mailed to over 1,600 people. Selective enforcement served an important part in our traffic safety program. Six large spot maps were maintained daily. From these maps the officers were assigned to the trouble spots.

The year of 1945 saw the development of the School Safety Patrol by the Police Department. As of December 31, 1945, there were 79 organized and trained patrols. There are 93 public schools in Houston.

The final traffic death toll was 52 killed in 1945 against 56 for 1944.

PERCY F. HEARD
Chief of Police

What Adequate Transportation Is

A SURVEY of the bus transportation facilities in Miami, Fla., by the Greater Miami Apartment House Association recommended to the city commission that these five points be put into effect by the city:

1. Modern and adequate equipment as soon as possible.
2. More frequent scheduled trips with no more than ten-minue intervals between buses, except during "owl" service periods after midnight
3. Scheduled additional service during peak-load hours 7:30 to 9:30 a.m. and 4:00 to 6:30 p.m.
4. Require the bus company to publish and file with the city Commission schedules on each route
5. City, at intervals, to check buses to determine if published schedules are being maintained

Better service was stressed as the prime factor.

Who Heads Traffic In 78 Cities

PERSONS TO WHOM CITY TRAFFIC ENGINEERING HEADS REPORT

Title of Person To Whom Traffic Engineering Heads Report	Population 50,000—100,000		Population 100,000—200,000		Population 200,000—500,000		Population Over 500,000		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Mayor or City Manager	1	12	2	20	3	18	1	13	7	17
City Council or Commission	1	11	—	—	—	—	—	—	1	3
City Engineer or Dir. of Streets	2	22	—	—	3	19	2	25	7	16
Director of Public Works	1	11	4	40	3	19	1	12	9	21
Director Public Safety	1	11	1	10	3	19	2	25	7	16
Police Head	1	11	2	20	3	19	1	13	7	16
Traffic Commission or Board	2	22	1	10	—	—	—	—	3	7
City Planning Engineer	—	—	—	—	1	6	—	—	1	2
Director of Motor Vehicles and Traffic	—	—	—	—	—	—	1	13	1	2
Total—With Traffic Eng. Division	9	100	10	100	16	100	8	100	43	100
Title of Person to Whom Traffic Heads Report in Cities Without Traffic Engineering Div.										
Mayor	5	26	—	—	—	—	—	—	5	14
City Council	1	5	—	—	—	—	—	—	1	3
Director of Public Safety	2	11	1	9	—	—	—	—	3	9
Police Head	7	37	9	82	3	60	—	—	19	54
Traffic Commission	1	5	—	—	—	—	—	—	1	3
Police and Engineering—Divided	3	16	1	9	2	40	—	—	6	17
Total—Without Traffic Eng. Div.	19	100	11	100	5	100	—	—	35	100
Total	28	—	21	—	21	—	8	—	78	—

REQUESTS for information concerning traffic engineering organizations were mailed to 211 cities of more than 50,000 population.* In most cases, the questionnaires were mailed to the city engineer or director of public works.

Of 78 cities reporting, it was found that 43, or 55%, have traffic engineering bureaus or agencies. The others, 45%, reported no formal traffic engineering activities.

Traffic responsibility in the latter 35 cities heads up in the following departments: in 18 cities it is the police; in 11 the police and engineering departments; in 4 the public safety department; in 1 the engineering department; in 1, police and electrical bureau.

In cities having traffic engineers, the bureaus are located in the following departments: engineering or public works in 16 cities; public safety, 7; police, 7; traffic commission, 3; city planning, 1; motor vehicles and traffic, 1; separate city bureau in 8 cities. The officials to whom traffic heads report are listed in the larger table.

Traffic Engineering Functions

Each city was asked to furnish information as to the assignment of responsibility and the allocation of control relative to a wide range of traffic functions. Among these were traffic control devices classified as signals, signs, and pavement markings. For instance 8 of the 28 cities with populations 50,000 to 100,000 indicated that the traffic engineering division has some responsibility for the erection and maintenance of traffic signals. In 5 of these cities, they have the complete responsibility. In 7 the signals are the complete responsibility of the electrical or lighting bureaus; in 15 the electrical or lighting bureau performs some part of the work of installing and maintaining traffic signals. In 7 cities traffic signals are the complete responsibility of the police and, in 1 city, of the city engineer. A summary of this report is given below:

ALLOCATION OF RESPONSIBILITY FOR POLICE FUNCTIONS IN CITIES REPORTING

	Traffic Signals		Signs		Pavement Markings	
	Partial	Complete	Partial	Complete	Partial	Complete
Traffic Engineer	41	27	42	36	42	36
Lighting Bureau	31	11	—	—	—	—
Police Departments	29	17	35	26	32	26
City Engineer	5	1	19	13	20	11

* From the *Official Traffic Organizations in Cities and States*, a survey conducted by the Eno Foundation for Highway Traffic Control Inc., December 1945.

The Meter that "CLICKED" with America

Here's why... Dual Automatic Parking Meters have always been held in high regard because they combined the best principles of operation, shape, size and general appearance to do their job—AND DO IT WELL.

Since 1935, and until war stopped production, 166 cities in 22 states installed 71,393 Duals. Now Duals are in production again—ready to help you solve your increased parking and traffic control problems.

Attractive, easy and economical to install, maintain and operate . . . these meters are wear-resistant and tamperproof. Their original fine performance PLUS new improvements in design and construction have gained the enthusiastic endorsement of merchants, motorists, police and city officials, alike.

For more complete information, send for the attractive booklet—"Metered Parking—Today's Answer to Tomorrow's Traffic Control Problem". Or ask Dual engineers to help survey your needs. They'll be glad to cooperate.

THE DUAL PARKING METER COMPANY
HARTER BANK BUILDING • CANTON 2, OHIO

When it Comes to Controlling Parking....
You can do it better with DUALS

Sewerage and Sewage Treatment Planning

(Continued from page 121)

Texas

City	Cost
Amarillo	1,088,500
Carthage	102,428
Cleveland	205,000
McAllen	200,000
Odessa	256,468
Raymondville	86,396
Seymour	248,000
Smithville	110,000
Texas City	507,625
Waco	671,250
Weatherford	80,000
Woodville	55,000

Utah

City	Cost
Bountiful	$633,000
Ogden	296,000
Salt Lake City	1,050,000
Salt Lake County	637,340

Vermont

City	Cost
Brattleboro	$397,100
Burlington	700,000

Virginia

City	Cost
Arlington County	$1,576,000
Cambria	117,600
Charlottesville	260,000
Fairfax	182,550
Gate City	125,000
Gordonville	99,138
Henrico County	466,000
Portsmouth	1,013,000
Waynesboro	458,700

Washington

City	Cost
Bellingham	$95,835
Bryn Mawr	159,895
Burlington	168,000
Enumclaw	141,000
Everett	1,072,500
Monroe	107,276
Seattle	314,290
Sedro-wolley	204,900

West Virginia

City	Cost
Charleston	$2,389,383
Clarksburg	1,000,000
Logan	326,300
Parkersburg	115,300
South Charleston	500,000
South Parkersburg	93,000
Wierton Heights	145,000

Wisconsin

City	Cost
Barron	$69,550
Dodgeville	312,000
Green Bay	346,290
Ladysmith	368,021
Mellen	97,000
Pardeeville	102,207

Wyoming

City	Cost
Greybull	$85,470
Laramie	87,000

Community Relations for Manufacturers

THE social and economic importance of a sound program of community relations in the areas in which a company or its plants are located is stressed in a folder written by Walter Geist, President of Allis-Chalmers Manufacturing Company, of Milwaukee, and published by the Electrical Manufacturers Public Information Center, New York 17, N. Y.

Public Administration Institute

A NEW Institute of Public Administration with a four-fold program has been established by the Board of Regents at the University of Michigan. Organizational details will be completed soon, and the Institute will be in operation by the summer session, Provost James P. Adams has announced.

Its purposes are:

1—Provide instruction and counseling for graduate and undergraduate students in public administration.

2—Conduct research on matters of public interest, such as finance and taxation, social security, management, and employment.

3—Offer services to public administrative offices and legislative bodies. These services and the research activities will be carried on in cooperation with off-campus agencies interested in similar problems. Chief research and service unit will be the University's Bureau of Government.

4—Provide "in-service training" to advanced students, through cooperation with offices of various units of government; and offer short courses to public employees. This phase of the program will not be started immediately.

Clearing House for Film

THE Library of Congress has announced the establishment of a central film agency which will provide information on educational film and perform the distributional duties discontinued by the Office of War Information and the War Bond Division of the Treasury Department. The film dealt with will be motion pictures produced by various governmental agencies, and educational and commercial associations during the war, many of which are of lasting historical and governmental value. The Library of Congress will publish catalogs of available film as soon as possible and will serve agencies in Washington directly. Qualified film and book libraries will serve schools, clubs, civic and industrial groups, and the general public.

City Manager Appointments

These city managers, whose appointments have been announced in the last two issues of THE AMERICAN CITY, *are, left to right, top, Lt. Commdr. Lloyd C. Waterstraut, manager of Three Rivers, Mich.; Clyde E. Swank, manager of Fort Pierce, Fla.; bottom, Ross E. Windom, manager of Sarasota, Fla.; R. H. Custer, manager of Fort Fairfield, Me.; and LeRoy F. Harlow, manager of Albert Lea, Minn.*

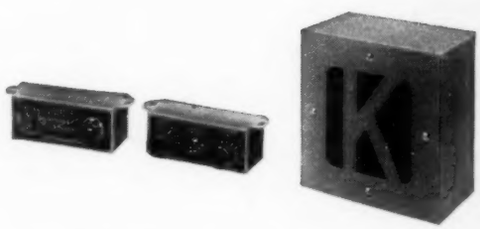
KAAR INSTANT HEATING MOBILE FM

Now available! An FM Radiotelephone with a truly NATURAL voice quality!

New KAAR FM radiotelephones offer an improvement in tone quality which is suprising to anyone who has had previous experience with mobile FM equipment. The over-all audio frequency response through the KAAR transmitter and receiver is actually within plus or minus 5 decibels from 200 to 3500 cycles! (See graph below.) This results in vastly better voice quality, and greatly improved intelligibility. In fact, there is appreciable improvement even when the FM-39X receiver or one of the KAAR FM transmitters is employed in a composite installation.

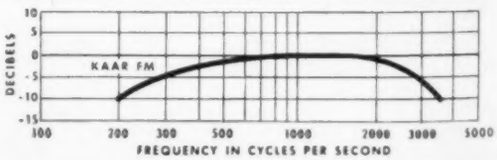
KAAR FM transmitters are equipped with instant-heating tubes, thus making it practical to operate these 50 and 100 watt units from the standard 6 volt ignition battery without changing the generator. Inasmuch as standby current is zero, in typical emergency service the KAAR FM-50X (50 watts) uses only 4% of the battery current required for conventional 30 watt transmitters. Battery drain for the KAAR FM-100X (100 watts) is comparably low.

For full information on new KAAR FM radiotelephones, write today for Bulletin No. 24A-46.



KAAR LOUD SPEAKER, remote controls for transmitter and receiver (illustrated above) and the famous Type 4-C push-to-talk microphone are among the accessories furnished with the equipment.

IMPROVED OVER-ALL FREQUENCY RESPONSE THROUGH KAAR FM TRANSMITTER AND RECEIVER



KAAR ENGINEERING CO.
PALO ALTO • CALIFORNIA

KAAR ENGINEERING CO.

Outdoor Lighting

A Strictly Modern Lighting System Economically Planned

Comprehensive five-year plan will relight Kansas City, Mo., for $14.75 per 1,000 lumens against $47.53 now

By T. J. SEBURN
Traffic Engineer
Kansas City, Mo.

IN JANUARY 1943, by executive order of the Director of Public Works of Kansas City, Mo., the Traffic Engineering Division assumed the responsibility for the street lighting program. This was later confirmed by action of the City Council in which street lighting was added to the duties of the Traffic Engineer.

Kansas City with a population of 430,000 persons is the principal city in a metropolitan area of almost three-quarters of a million. The city has a street system of approximately 750 miles including all residential streets and boulevards. All of the lighting in the city, with the exception of one section of almost a mile, is composed of old-style equipment using many radial wave lights and almost one hundred miles of so-called brightway lighting that was installed 25 years ago. Consequently, this city presents a fertile field for a street lighting modernization program.

The street lights are owned and operated for the city on a contract basis by the Kansas City Power and Light Company, and rates for both new style and existing old style lights had been included in the contract at the time of a revision in 1940. However, it was the feeling of the city authorities that some adjustment should be made in these rates, and consequently, the task of planning a modernization program consisted of two major phases.

One of these was the actual planning of a system of lighting which would meet modern standards, and which we anticipate will help reduce night traffic accidents without speed reduction, and provide greater protection and convenience to pedestrians, stimulate retail trade, aid police in combating various forms of crime, and generally add to our civic pride and municipal advertising.

The second phase of the program consisted of renegotiating the contract in order to make it possible to adopt the modern lighting program after it was planned. These two phases were developed together because we felt that knowing what we wanted to do in the way of street lighting would enable us to judge better the steps necessary to take in contract negotiation, and, conversely, contract stipulations would be a guide in determining what it was possible to do in the way of modernization. Little time will be spent in this article in dealing with the contract phase of the program. Suffice it to say that we found the company extremely willing to cooperate, and as a result, we believe we can provide good illumination throughout the city for approximately $725,000 a year, which is well within the recommended annual cost as submitted by the Illuminating Engineering Society.

Traffic Volume and Accident Toll Surveyed

First, the city was surveyed with regard to traffic volumes and accident experience, and a system of arteries set up upon which it was proposed to install traffic safety lighting. This system of arteries comprised 163.9 miles and is shown in Figure I. The network of streets and boulevards shown in this figure compares very favorably with the traffic flow map of the city and also with the pattern set up by a special night accident spot map, which has been maintained in the Traffic Engineer's Office for several years. The balance of the 750 miles of the street system is scheduled to be relighted as non-traffic or residential streets. Further description of the lighting plan for these sections will be given later.

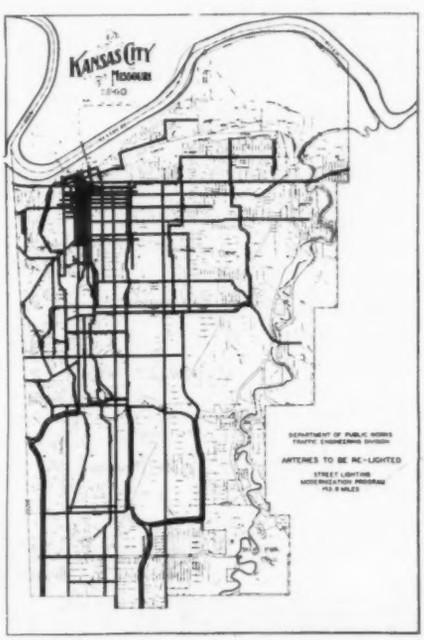


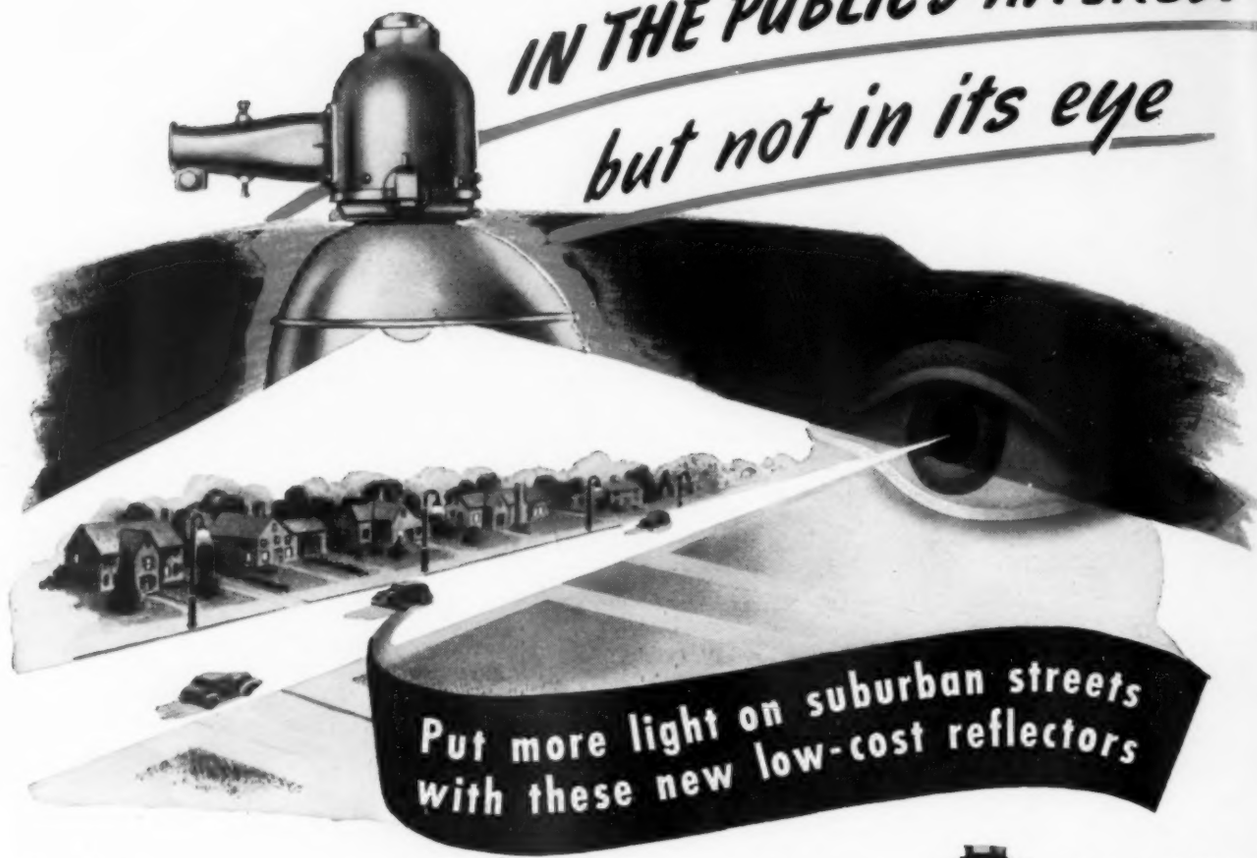
Fig. I—Traffic arteries to be relighted

On the arteries to be relighted, the next step was to classify the streets by type of district—residential, retail business, or wholesale. From traffic volume information maintained over a period of years, the heaviest night hour of traffic movement was established for each section of this system. These were then classified as light, medium, heavy etc., according to the criteria of the Joint Committee of the Institute of Traffic Engineers and the Illuminating Engineering Society.

The proposed illumination values established for each section are in accordance with the recommendations of the Illuminating Engineers. The number, size, and style of light was then established for each artery in order to provide most economically the degree of illumination required. In preparing this schedule, factors such as roadway width, pavement surface and texture, foliage conditions, etc., were considered in the preliminary layout. The light patterns of the various luminaires were applied to these conditions and in this manner, the proposed mounting height, spacing, and lamp size were determined. All of this work was done in preliminary form for the entire system of arteries to be relighted, and the relighting program set up for anticipated completion over a five-year period.

In attempting to select priority of installation for the traffic safety lighting, further analysis of the night traffic fatalities was made. Figure II will

IN THE PUBLIC'S INTEREST—but not in its eye



HERE are the successors to the radial-wave reflector—two new G-E suburban reflectors that now bring scientific light distribution to the lighting of residential streets. Light formerly dissipated in non-useful directions is utilized to better advantage. Direct glare is greatly reduced. Uniformity of illumination on the road is much improved, yet installation and maintenance are easy.

Two types—open and enclosed—using series lamps of 1000- or 2500-lumen rating are available with adapters to fit practically any fixture that takes the standard-dome radial-wave reflector. They may be installed either as unit-for-unit replacements to provide better light distribution, or in accordance with I.E.S. Recommended Practice to obtain specified illumination levels at low cost.

These G-E suburban reflectors offer utilities an inexpensive way to improve suburban lighting in their communities and to keep that lighting at high efficiency for years of low-cost service. Why not check the features listed here, then ask your local G-E representative how these reflectors can fit into your suburban streetlighting plans? *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*

SCIENTIFIC LIGHT CONTROL

A highly efficient light distribution pattern effectively utilizes much of the light ordinarily wasted in producing objectionable glare and illumination of house fronts.

HIGHER LIGHTING LEVELS

When equipped with the new G-E 2500-lumen lamp of 5 3/8-inch light-center length and spaced as recommended, I.E.S. Standards for suburban lighting can be readily met.

USE TWO WAYS

1) *In existing installations* as unit-for-unit replacements for radial-wave reflectors.

2) *In new installations* to provide higher lighting efficiency and more uniform illumination.

LOW MAINTENANCE COST

Alzak-processed aluminum reflectors retain high efficiency for years under all weather conditions, and are easily cleaned when necessary. Enclosed type has refractor spun-sealed to keep out dirt and to practically eliminate breakage.

(a) Form 72 CR luminaire with enclosed suburban reflector. Simple latches and a safety chain facilitate relamping.

(b) Form 45 L luminaire with open suburban reflector. Either one or two shields may be easily attached if needed.

Good Street Lighting

—the sign of a good place to live

STREET LIGHTS *for better seeing*

GENERAL ELECTRIC

452-40-3010

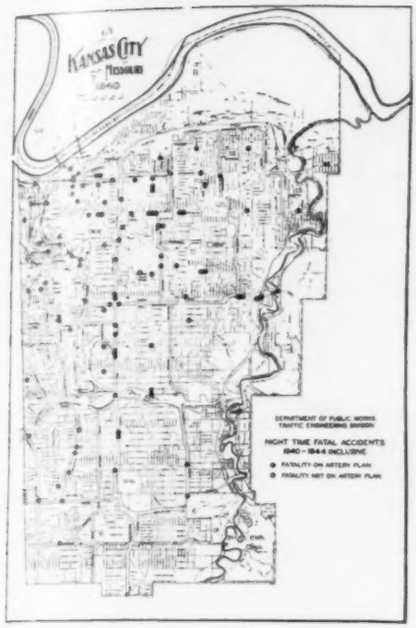


Fig. II—Locations of night traffic fatalities

serve as a reference in a discussion of this phase of the program. All night traffic fatalities over the five-year period from 1940 to 1944 inclusive were spotted on a map of the city, and it was found that of the 106 night fatal accidents in this period, all but five occurred on the system of approximately 164 miles shown in Figure I.

These sections of streets having two or more fatal accidents in the five-year period accounted for 89 of the total night fatalities on approximately 40 miles of the street system. Therefore, it was obvious that the biggest saving in life, and consequently the most urgent sections to be relighted were included in this system of 40 miles, and these were immediately given first priority. In order to provide a more complete system of arteries, a few gaps were filled, increasing the total to 44.1 miles as shown in solid black lines on Figure III.

Modern Equipment at Lower Cost

Further examination showed that there were approximately 5.6 miles of streets where the night accident situation was good, and although sections were fairly well lighted with old style fixtures by virtue of the number of these luminaires used, it was found that equivalent or better lighting could be provided on these streets with modern equipment at less cost than under the present arrangement. These were also added to the first phase of the traffic safety lighting part of the program. This made a total of 49.7 miles of traffic safety lighting which was recommended to be installed as soon as new equipment can be obtained from the manufacturers. The program was submitted to the Finance and Public Utilities Committees of the City Council and approved by those Committees for installation in the first year.

Detailed strip maps have been prepared for nearly all of these sections, and orders written to the utility company and accepted by that company for installation as soon as equipment is received. These maps show the exact location, mounting height, bracket length, luminaire style, lamp size, and all required features to provide the lighting desired.

Thus, it is seen that the ability of the manufacturers to produce and deliver street lighting equipment will be the only thing that keeps Kansas City from being well on its way to completion over a five-year period, a program of traffic safety lighting.

Residential Lighting

Next is the matter of improving and modernizing the lighting in residential areas. There are three principal parts in this phase of the program.

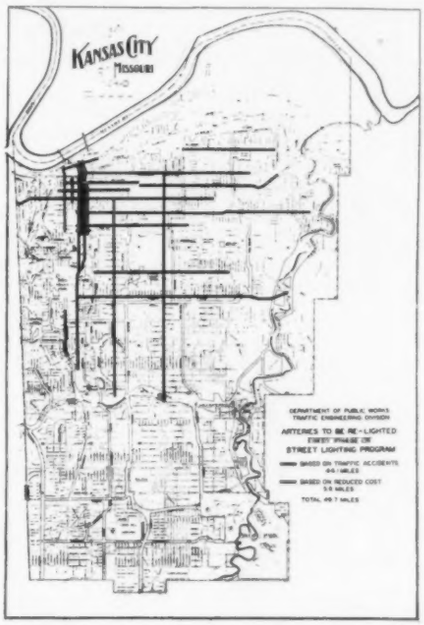


Fig. III—High fatality sections to be relighted first

First, our studies have indicated that there are approximately 250 residential intersections where there is no light whatever at present.

Second, Kansas City has approximately 1,700 gas lights that should be replaced with electric lights.

Third is the matter of replacing existing lights with modern equipment in order to provide better illumination.

In general, the residential and light-traffic street system in Kansas City is composed of rectangular blocks 330 feet by 660 feet, and it is proposed to provide modern luminaires eventually at each residential intersection with an additional luminaire at the mid-block point on the long blocks. This will mean a spacing in these areas varying from 300 to 350 feet. The use of modern luminaires of the refractor type giving equilateral distribution of light mounted on long brackets placing them more nearly over the middle of the roadway, should give the required illumination for these residential areas.

Our first step, then, is the installation of this new type of luminaire at the 250 locations now without light.

Next will be the replacement of existing gas lights. As indicated above, there are 1,700 of these and of this number the big majority are so located that two or more gas lights can be replaced with one electric light to give more illumination on the street. This is true at 497 locations comprising a total of 1,124 gas lights and at all of these points the two gas lights cost more per year than the one proposed electric light. Therefore, in addition to improving the lighting, the annual cost to the city will be reduced by approximately $3,000. These installations and those for the 250 residential intersections already mentioned have been approved by the City Council's Finance and Public Utilities Committees for immediate installation as soon as equipment is available.

The final step in our modernization program is the replacement of all the remaining residential lights with modern equipment, and this work we anticipate will be completed in a five-year program.

The net result will be as follows:

We will replace a total of slightly over 15,000 electric and gas lights with approximately 13,500 electric lights. Where we now have several thousand 250-candlepower lights, we will use nothing less than 400-candlepower and many of the 1,000- and 1,500-candlepower sizes. We are now delivering eleven and one-half million effective lumens of light to the streets of Kansas City at a total cost of $552,000 per year, or $47.53 per thousand effective lumens. Our proposed system will deliver 49 million effective lumens on the streets at a total cost of $722,000 per year, or a cost of $14.75 per thousand effective lumens.

This entire program is based upon meeting the recommended practice of the Illuminating Engineering Society for each street, and the system has been so designed that where less than one foot-candle of light is provided, we will be able to increase the lighting to one foot-candle by merely changing the size lamp used in the luminaire.

Provide Safer Streets by Lighting Your Town with L-M Spherolite

L-M Spherolite gives you the kind of lighting you want and must have for complete safety on the roadway. Spherolite controls the light, in both vertical and horizontal planes . . . distributing it uniformly over a wide area instead of concentrating the light near the luminaire. The scientifically designed, fluted reflector and Holophane refractor provide maximum illumination with a minimum of glare.

Spherolite is thoroughly sealed against dirt, bugs and moisture, thus keeping maintenance costs *down*. Flexibility of construction permits cleaning and replacement of parts *in the field*.

Get details on the complete line of L-M street lighting equipment and the valuable engineering service which is available to you. Write Line Material Company, Milwaukee 1, Wisconsin.

Cost-Cutting Features of Spherolite

1. **All-metal Hood:** die-cast aluminum; provides ample space for insulation wiring. Various other hoods and porcelain heads are available for all installation conditions.
2. **Receptacle; Socket:** wet process porcelain; rugged, silver-plated contacts and current-carrying parts. Also furnished for multiple system.
3. **Toggle Latch:** fastens reflector firmly to hood. Weather-proof joint; accurately-machined reflector seat.
4. **Reflector:** Alzak Aluminum, scientifically fluted to insure accurate light control. Safety chain holds reflector when fixture is serviced.
5. **V-Band Holder:** one of three available types; provides permanent seal between glassware and reflector, but 2 screws can be loosened to replace glassware in the field.
6. **Light Source:** concealed to reduce disturbing, dangerous glare.
7. **Deflector:** specular aluminum, used in connection with asymmetric light distribution.
8. **Holophane Refractor:** lateral one-piece, self-cleaning L-M diamond mesh pattern. Also shallow or deep clear or various density globes.

Write for Bulletin 4432

Illustrations; details of Spherolite; valuable information on uses; ask the L-M Field Engineer for a copy, or write Line Material Co., Milwaukee 1, Wisconsin.

LINE MATERIAL
STREET LIGHTING EQUIPMENT

L-M DISTRIBUTION EQUIPMENT INCLUDES: Distribution Transformers • Fuse Cutouts and Fuse Links • Lightning Arresters • Oil Switches • Pole Line Hardware • Line Construction Specialties • Underground Equipment • Fibre Conduit • Street and Airport Lighting Equipment • Wired Radio Control Equipment • Capacitors

Above, from left to right, are East Water Street, South Avenue, and Onondaga Street before relighting. The larger pictures, in the same order from top to bottom, show the streets after relighting.

Syracuse Test Emphasizes Lighting Values

LIKE many other American cities, Syracuse, N. Y., has included in its post-war plans a program of improved street lighting. The need for relighting is indicated in the photographs above, which were taken prior to the city's experimental lighting project carried out before the war. Such startling transformations as those shown in the photographs of the same streets after relighting, emphasized the importance of proper illumination. However, the war made it impossible for Syracuse to follow up the project with a city-wide relighting program, and the knowledge derived from the experiment could not be applied immediately.

East Water Street was originally lighted by 2,500-lumen lamps on wooden poles. In the experimental project, the installation of 10,000-lumen lamps on poles 20 feet high gave the district adequate illumination for the first time. On South Avenue the 2,500-lumen lamps were replaced by lamps of 6,000 lumens on poles 29 feet high; while the lantern-type, 4,000-lumen lamps of Onondaga street gave way to pendant-type General Electric luminaires with 10,000-lumen lamps mounted 20 feet high. Improvements in visibility resulting from the new installations are obvious. The metal poles used to mount the lamps in the Syracuse experiment are a product of the Union Metal Manufacturing Company.

The decided advantages of the improved lighting were indicated by police records showing, on the relighted streets, a decrease of 23% in night accidents during the year following the installations, while day accidents increased 22%. In addition, a reduction was noted in the night crime record. Long delayed in the program of street relighting, Syracuse plans to go ahead with improvements, replacing arc lights and upright units with modern pendant luminaires 25 feet high.

RIGHT FOR CLEAR SIGHT

New Union Metal Street Lighting Standard Meets Latest I. E. S. Code Requirements

A new, streamlined street lighting standard, specially built to meet the requirements of the I.E.S. new street lighting code is now ready for use.

Designed by Union Metal's illuminating engineers, and backed by 38 years' experience in building *steel* poles, these tapered standards incorporate new easy wiring features . . . are simple to install, economical to maintain, attractive in appearance.

Available in standardized heights to reach nominal light centers of 20, 25, 30, 35 and 40 feet, these standards are equipped with the new 45-degree upsweep-type brackets in 4, 6 and 8-foot lengths, with supporting scrolls. Also available with 10, 12, 15 and 18-foot mast arms with top side-sway bracing.

A fabricated steel transformer base adding 20 inches to overall height can be supplied where transformers are required. Your choice of two designs—octaflute or plain round.

For complete information, contact your electric utility company or write direct to The Union Metal Manufacturing Company, Canton 5, Ohio. *In case you don't have one, we will be glad to send you a free copy of the Illuminating Engineering Society's new street lighting code.*

UNION METAL

Largest Producers of Street Lighting Standards

Zoning and Planning Notes

Edited by FRANK B. WILLIAMS
Author of *The Law of City Planning and Zoning*

Streets—Obstructions—Statute of Limitations

CALIFORNIA—*Phillips* v. *City of Pasadena*, Supreme Court, October 19, 1945, reported in 162 P. 2d, page 625.

The complaint in this case asserts that for more than 30 years the plantiff Phillips has been the owner of Camp Oak White, a mountain resort, operated on land leased from the federal government, outside the limits of the city of Pasadena. The only safe means of going to and from the resort was by a road partly within the limits of the city, which was used by Phillips, his patrons and the public generally, except for brief periods when obstructed by heavy rainfall. In 1938 the city closed the road by placing a locked gate across it at an intersection within the city, which was later removed on Phillips' demand. The road was again closed in March 1941. Phillips asserts that because the city had on a previous occasion removed the barrier on his demand, it did not become apparent that it was the intention of the city permanently to obstruct the road until after July 16, 1941. Phillips further asserts that as a result of the obstruction of the road during the period of 6 months prior to January 16, 1942, his resort business was destroyed.

In its decision the court rules that a municipality is liable for creating or maintaining a nuisance even though a governmental activity is, as in this case, involved.

Anything that unlawfully obstructs the free passage or use in the customary manner of a public street is a nuisance, and any person whose property is injuriously affected or whose personal enjoyment is lessened by a nuisance may maintain an action for damages or abatement. The unlawful barricading of a public street is a nuisance for which a person specially injured may maintain an action; and where such an obstruction cuts off all means of ingress and egress, the nuisance is especially injurious.

The city contends that it has authority to vacate streets, and that the complaint in this case is fatally defective because there was no allegation in it that the street was not so closed. If closed in this way, the erection of a barrier would not be a nuisance. The court agrees that where the legislature authorizes a particular thing to be done, the doing of it cannot be complained of as a nuisance, although apart from such authority it might be a nuisance; but the court points out that the full extent of legislative power to legalize and shield a nuisance is to exempt it from public prosecution. Under the constitutional provisions against depriving persons of property without due process of law, and taking property for public purposes without compensation, the legislature has no power to authorize injury to private property without compensation; and so the rule that what the legislature authorizes cannot be a nuisance applies only to the question of abatement; and a person is entitled to recover damages for an injury even though the act or structure causing the damage be expressly authorized by statute or license.

But it was not necessary, under the pleadings in this case, for the plaintiff to assert specifically that the street was not closed legally. Moreover, the city concedes that the street was not closed in this way but under its police power as unsafe. And even if it may be assumed that a city may permanently close a street under its police power, plaintiff in order to start a cause of action was not obliged to negate facts the existence of which the defendant might assert as the basis of its right to exercise this power.

Is this suit barred by the six months' statute of limitations? The court rules that it is not. A nuisance which presumably will continue indefinitely is considered permanent, and the statute begins to run against it, in its entirety, from the time it was created; but if the nuisance may be discontinued at any time, the nuisance is considered continuing and suit may be brought for its repetition. The court in this case cannot say as a matter of law that the nuisance was not continuing and therefore allows recovery for it for six months prior to the beginning of the action.

Non-Conforming Use—Abandonment

ILLINOIS—*Douglas* v *Village of Melrose Park*, Supreme Court, January 17, 1945, reported in 380 Ill. 98.

The appellant Douglas is the owner of a piece of real estate in a residential zoning district. On it stands a building used, before the enactment of the ordinance, as a printing shop. By reason of ill health, appellant sold her business and leased the building for the same use. The tenant vacated the premises, removing the printing machinery, but leaving such equipment as was attached to the building. From that time down to the present time the appellant has attempted to rent the building either for printing or for the manufacture of small articles.

The ordinance allows the continuance of a non-conforming use; but if such use is "discontinued" or changed to a higher classification or to a conforming use, the use cannot thereafter be changed to a use of lower classification.

The village claims that appellant has discontinued the non-conforming use and cannot resume it. This contention the court denies. Discontinuance of a use means more than a mere suspension of it; discontinuance is a matter of intention and is equivalent to abandonment. Time is not an essential element of abandonment; although it is evidence of abandonment, especially in connection with other facts evidencing such intention. It is apparent from the efforts made by appellant to rent the property for the non-conforming use that she did not intend to abandon it. The court, therefore, rules that she has the right to its continuance as a non-conforming use.

Traffic Regulation—Parking

OHIO—*Hayne* v. *Wurstner*, Chief of Police, Court of Appeals, May 18, 1945, reported in 63 N. E. 2d, page 229.

The plaintiff Hayne has owned and operated a funeral home on East Third Street, in the City of Dayton, for 30 years. In the conduct of his business, plaintiff asserts that it is necessary for him to park automobiles in front not only of his establishment but of several adjacent residences: his neighbors had not objected:

In May 1943 the police department placed a "no parking" sign in front of these adjoining properties, asserting that parking here had interfered with traffic in this area. No restriction, however, was placed on parking in front of plaintiff's own property. The plaintiff asserts that the restriction was unnecessary, unreasonable, discriminatory, and unjust. This the city denies, and also says that the regulation was made under authority of the state Uniform Traffic Code, and was in accord with its provisions.

The Court finds that the "no parking" regulation in this case was reasonable and valid. The plaintiff has no rights of parking in front of neighboring property greater than those of the general public. Even an owner himself has no right of parking in front of his own property, as against the city or state enacting reasonable traffic regulations, such as a parking law, unless they interfere with ingress or egress as to his own property.

The plaintiff introduced evidence that, with parking, there was still enough room at this point for convenient and safe traffic movement, especially during the period of the day when funerals were ordinarily conducted; but experts for the City testified the ban was necessary.

The City concedes that the no parking ban would not prevent the formation of funeral processions along the curb for the purpose of loading and unloading passengers.

There are some congested intersections in the city which the authorities have not specifically designated adjacent land "no parking" areas; but this fact does not make the ban in the present case invalid.

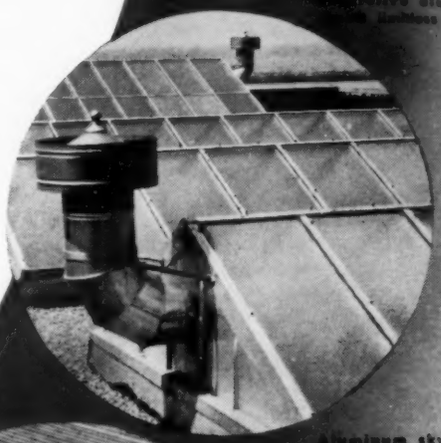
The Court finds the no parking ban valid, and sustains it.

THE MOST VERSATILE OF ALL BUILDING MATERIALS...

Alcoa Aluminum

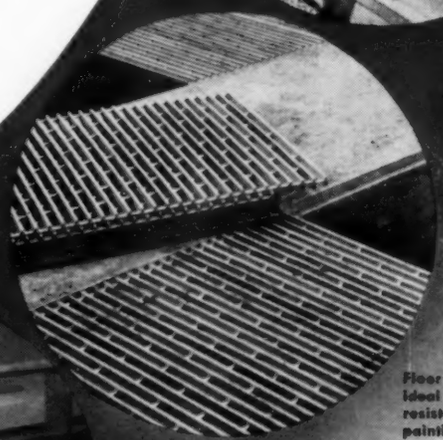
Ever think of aluminum in this way? Surprising but true—Alcoa Aluminum is the most versatile of all building materials. What you can do with other metals you can often do better with aluminum—plus the fact—its light weight, durability and economy often recommends its use in place of nonmetallic materials.

There are over 212 ways you can use aluminum in building construction—and each with distinctive advantages. ALUMINUM COMPANY OF AMERICA, 2172 Gulf Building, Pittsburgh 19, Pennsylvania.

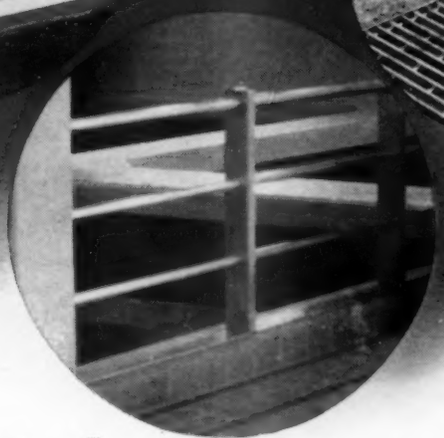


Aluminum skylights save weight and provide excellent weather-resistant qualities.

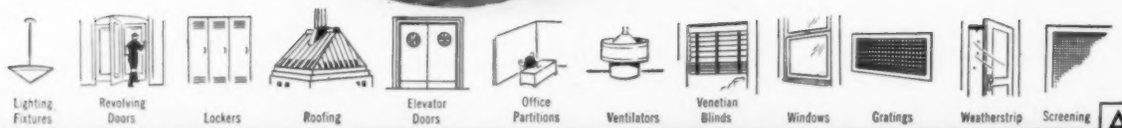
Aluminum sidewalk doors are light in weight—easy to operate. Highly resistant to corrosion—need no paint.



Floor gratings of aluminum are ideal for sewage plants. High resistance to corrosion makes painting unnecessary.



Guardrails of aluminum are maintenance-free. They never rust—will resist corrosive action of gases.



ALCOA FIRST IN **ALUMINUM**

ALCOA ALUMINUM

Conventions—When and Where

Apr. 8-10—**Clemson, S. C.**
South Carolina Water and Sewage Works Association. Annual Meeting and Short School (Clemson College). Sec.-Treas., D. F. Frick, 418 State Office Bldg., Columbia, S. C.

Apr. 8-10—**Niagara Falls, Ont.**
American Water Works Association—Canadian Section. Annual Convention (Hotel General Brock). Sec., Dr. A. E. Berry, c/o Ontario Dept. of Health, Parliament Bldg., Toronto, Ont.

Apr. 11-12—**Columbus, Ohio**
League of Ohio Municipalities. Annual Conference (Hotel Deshler Wallick). Pres., Chas. E. Slusser, City Hall, Akron, Ohio.

Apr. 11-12—**Butte, Mont.**
Montana Sewage Works Association. Annual Meeting (Hotel Finlen). Sec.-Treas., Herbert B. Foote, Division of Sanitary Engineering, State Board of Health, Helena, Mont.

Apr. 12-13—**Butte, Mont.**
American Water Works Association—Montana Section. Annual Meeting (Hotel Finlen). Sec.-Treas., Herbert B. Foote, Division of Sanitary Engineering, State Board of Health, Helena, Mont.

Apr. 15-16—**Fayetteville, Ark.**
Arkansas Water and Sewage Works Conference. Annual Conference (Engineering Building—University of Arkansas). Sec., Harrison Hale, University of Arkansas, Fayetteville, Ark.

*Apr. 15-18—**Pittsburgh, Pa.**
Association of School Business Officials. Annual Convention (Hotel William Penn) Sec., H. W. Cramblet, Board of Education, Pittsburgh, Pa.

Apr. 17-18—**Alexandria, La.**
Louisiana Municipal Association. Annual Convention (Hotel Bentley). Sec.-Treas., Mrs. Henry Jastremski, City Hall, Baton Rouge, La.

Apr. 22-24—**Dallas, Texas**
American Planning and Civic Association. Citizens Conference on Planning. Exec. Sec., Miss Harlean James, 901 Union Trust Bldg., Washington, D. C.

*Apr. 29—**Atlantic City, N. J.**
National Fire Waste Council. Annual Meeting (Hotel Seaside). Sec., H. E. Hilton, 1615 H St., N.W., Washington, D. C.

Apr. 29-30—**Augusta, Ga.**
Association of County Commissioners of Georgia. Annual Meeting (Hotel Bon Air). Exec. Sec., Miss Betty Peeler, P. O. Box 57, Decatur, Ga.

Apr. 30-May 1—**Atlantic City, N. J.**
Chamber of Commerce of the United States. Annual Meeting (Convention Hall). Gen. Mgr., Ralph Bradford, 1615 H St., N.W., Washington, D. C.

May 6-8—**New York, N. Y.**
American Society of Planning Officials. Annual Meeting (Hotel New Yorker). Exec. Dir., Walter H. Blucher, 1313 E 60th St., Chicago 37, Ill.

May 6-10—**St. Louis, Mo.**
American Water Works Association. Annual Convention. Sec., Harry E. Jordan, 500 Fifth Ave., New York 18, N. Y.

May 8-10—**Miami Beach, Fla.**
American Institute of Architects. Annual Convention. Sec., Alexander C. Robinson, III, 1741 New York Ave., N.W., Washington, D. C.

May 8-10—**Washington, D. C.**
President's Highway Safety Conference. (Interdepartmental Auditorium). Exec. Dir., Col. Light B. Yost, 707 Old Interior Bldg., Washington, D. C.

*May 9-10—**Memphis, Tenn.**
American Public Power Association. Annual Meeting (Hotel Peabody). Gen. Mgr., Carlton L. Nau, 726 Jackson Pl., N.W., Washington 6, D. C.

May 16-17—**Yakima, Wash.**
Association of Washington Cities. Annual Meeting (Hotels Donnelly and Commercial). Acting Sec., Joshua H. Vogel, University of Washington, Seattle, Wash.

May 16-17—**Baltimore, Md.**
Maryland-Delaware Water and Sewage Association. Annual Meeting Hotel Lord Baltimore). Sec., Miss E. V. Gipe, 2411 N. Charles St., Baltimore, Md.

May 17—**Greenwich, Conn.**
New England Sewage Works Association. Spring Meeting (Hotel Pickwick Arms). Sec.-Treas., Walter E. Merrill, 511A State House, Boston, Mass.

May 23-24—**Gearhart, Ore.**
American Water Works Association—Pacific Northwest Oregon. Annual Meeting (Hotel Gearhart). Sec.-Treas., Fred Merryfield, Department of Civil Engineering, Oregon State College, Corvallis, Ore.

May 27-28—**Detroit, Mich.**
American Society of Landscape Architects. Annual Meeting (Hotel Statler). Cor. Sec., Bradford Williams, 9 Park St., Boston, Mass.

*May 27-29—**St. Louis, Mo.**
Missouri Association of Municipal Utilities. Annual Convention (Hotel DeSoto). Sec.-Treas., W. J. McCarroll, Fulton, Mo.

June 2-5—**Pittsburgh, Pa.**
Pennsylvania State Association of Township Commissioners. Annual Meeting (Hotel Roosevelt). Sec.-Treas., H. A. Fritschman, Upper Darby, Pa.

June 3-6—**Boston, Mass.**
National Fire Protection Association. Annual Meeting (Hotel Statler). Managing Dir., Percy Bugbee, 60 Batterymarch St., Boston, Mass.

June 3-5—**Rochester, N. Y.**
New York State Conference of Mayors and Other Municipal Officials. Annual Meeting (Hotel Seneca). Exec. Sec., William P. Capes, 6 Elk St., Albany, N. Y.

*June 3-6—**Chicago, Ill.**
National Tax Association. National Conference (Palmer House). Raymond E. Manning, Library of Congress, Washington, D. C.

*June 9-11—**Monterey, Calif.**
California Sewage Works Association. Annual Meeting. Sec., Harold Jeffrey, 112 City Hall, Sacramento 14, Calif.

June 10-13—**Brainerd, Minn.**
League of Minnesota Municipalities. Annual Convention. Exec. Sec., C. C. Ludwig, University of Minnesota, Minneapolis, Minn.

June 10-13—**Richmond, Va.**
Municipal Finance Officers' Association of the United States and Canada. Annual Convention (Hotel John Marshall). Exec. Sec., Carl H. Chatters, 1313 E 60th St., Chicago, Ill.

June 13-14—**Lafayette, Ind.**
Central States Sewage Works Association. Annual Meeting (Purdue University). Sec.-Treas., J. C. Mackin, Route 4, Madison, Wis.

*June 16-21—**Montreal, Quebec**
International City Managers' Association. Annual Conference (Hotel Windsor). Dir., Clarence E. Ridley, 1313 E 60th St., Chicago, Ill.

June 17-19—**Cincinnati, Ohio**
National Association of County Officials. Annual Meeting (Hotel Netherlands Plaza). Sec.-Treas., George F. Simmons, Ogden, Utah.

June 20-21—**Akron, Ohio**
Ohio Conference on Sewage Treatment. Annual Meeting (Hotel Mayflower). Sec., Don Heffelfinger, c/o Sewage Treatment Plant, Alliance, Ohio.

June 20-22—**Reading, Pa.**
Pennsylvania State Association of Boroughs. Annual Convention (Hotel Abraham Lincoln). Pres., Thomas F. Chrostwaite, Hanover, Pa.

*June 21-22—**Peoria, Ill.**
Illinois Association of Sanitary Districts and Authorities. Annual Meeting (Hotel Pere Marquette). Sec.-Treas., John R. Longley, c/o Greater Peoria Sanitary District, Peoria 2, Ill.

June 23-26—**Minneapolis, Minn.**
Smoke Prevention Association. Annual Meeting (Hotel Nicollet). Sec., Frank A. Chambers, 139 North Clark St., Chicago, Ill.

June 24-27—**Vancouver, British Columbia**
Canadian Federation of Mayors and Municipalities. Annual Conference (Hotel Vancouver). Exec. Dir., Jessica Allan, Mount Royal Hotel, Montreal, Quebec, Canada.

July 3-5—**Buffalo, N. Y.**
National Education Association of the United States. Annual Meeting of Representative Assembly (Hotel Statler). Exec. Sec., Willard E. Givens, 1201 16th St., N.W., Washington, D. C.

July 22-24—**Pittsburgh, Pa.**
Pennsylvania Chiefs of Police Association. Annual Meeting (Hotel William Penn). Sec., F. B. Titus, Lansdowne, Pa.

July 23-25—**Utica, N. Y.**
New York State Association of Chiefs of Police. Annual Meeting (Hotel Utica). Sec.-Treas., R. W. Morris, Box 203, Capitol Station, Albany 1, N. Y.

July 23-26—**Cleveland, Ohio**
International Association of Fire Chiefs. Annual Meeting (Hotel Statler). Sec., Daniel B. Tierney, 8 Robbins Rd., Arlington, Mass.

Aug. 19-21—**Chicago, Ill.**
National Institute of Government Purchasing, Inc. Annual Conference and Products Exhibit (Hotel Stevens). Exec. Dir., Albert H. Hall, 730 Jackson Pl., N.W., Washington 6, D. C.

Aug. 26-28—**State College, Pa.**
Pennsylvania Water Works Operators Association. Annual Meeting (Pa. State College Buildings). Sec., I. M. Glace, 22 South 22nd St., Harrisburg, Pa.

Aug. 28-30—**State College, Pa.**
Pennsylvania Sewage Works Association. Annual Meeting (Pa. State College Buildings). Sec., Bernard S. Bush, c/o Department of Public Health, Kirby Health Center, Wilkes-Barre, Pa.

Aug. 29-31—**Cedar City, Utah**
Municipal League of Utah. Annual Meeting (Hotel Escalante). Exec. Sec., Mrs. Lyla Ray, 318 McIntyre Bldg., Salt Lake City 1, Utah.

Sept. 9-11—**Savannah, Ga.**
American Water Works Association—Southeast Section. Annual Meeting (Hotel DeSoto). Sec., B. P. Rice, Reconstruction Finance Corp.—Bond Service Division, Healey Bldg., Atlanta, Ga.

Sept. 16-20—**Poland Spring, Me.**
New England Water Work's Association. Annual Convention (Poland Spring House). Sec., Walter Conroy, 613 Statler Bldg., Boston, Mass.

Sept. 18-20—**Traverse City, Mich.**
American Water Works Association—Michigan Section. Annual Meeting (Hotel Park Place). Sec.-Treas., Raymond J. Faust, Division of Water Supply, Bureau of Engineering, State Department of Health, Lansing 4, Mich.

Sept. 18-21—**Quebec, Canada**
Illuminating Engineering Society. Annual Convention (Hotel Frontenac). Exec. Sec., A. D. Hinckley, 51 Madison Ave., New York 10, N. Y.

*Sept. 22-25—**Forth Worth, Texas**
American Public Works Association. Public Works Congress (Hotel Texas). Exec. Dir., Norman Hebden, 1313 E 60th St., Chicago 37, Ill.

Sept. 24-26—**New Castle, Pa.**
Pennsylvania State Association of County Commissioners. Annual Convention (The Castelton Hotel). Sec.-Treas., Herbert S. Bolger, Court House, Hollidaysburg, Pa.

(Continued on page 147)

* *First appearance on this page.*

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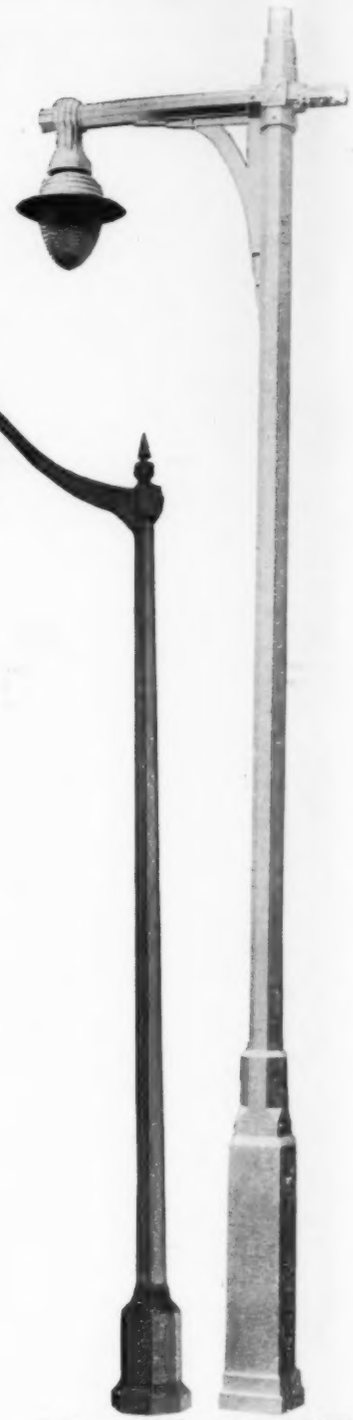

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Municipal and Civic Publications

Building Code Modernization

YOUR BUILDING CODE.—*By Miles L. Colean. National Committee on Housing, Inc., 512 Fifth Ave., New York 18, N. Y.* 1946. 30 *pp.* 35¢.

As pointed out in the foreword by Mrs. Samual I. Rosenman to this timely and important report, "The present housing crisis emphasizes the necessity of taking every reasonable step that will aid the building industry to lower costs so that adequate homes can be brought within the reach of more and more American families. One important way to lower costs is to open tre road to the wider use of the technological improvements already available and encourage further technological advances. And an essential means for opening that road is the modernization of our building codes."

The wide scope of this study is indicated by the article on pages 93, 94, 95 of this issue of THE AMERICAN CITY, where the author, Miles L. Colean, presents some of his most significant findings. The complete report should be consulted by all officials and others concerned with building code modernization.

1946 Edition Uniform Building Code

UNIFORM BUILDING CODE 1946 EDITION.—*Pacific Coast Building Officials Conference, 124 W. Fourth St., Los Angeles, Calif.* 1946. 312 *pp. For non-members clothbound* $3; *paper* $2.50.

The 1946 Edition of the Uniform Building Code contains many important changes since publication of the 1943 Edition. There are revised provisions concerning administration, heavy timber construction, masonry, stairs and exits, chimneys, vents, fireplaces, motion picture projection rooms, and heating appliances. For the first time, a chapter on prefabricated construction has been incorporated in the Code, as well as new sections regulating glued construction.

In making these extensive revisions, the Conference answers the insistent public demand for a building code that is modern enough to recognize new materials and elastic enough to permit new uses of old materials. The accepted policy of the Conference of specifying the results desired has been followed throughout, with the single exception of the limiting dimensions of masonry-bearing walls specified in Chapter 24. Here, definite dimensions are specified for the use of the architect or engineer who desires to use time-tested construction; but Code specifications do not suppress the ingenuity and imagination of the designer who wishes to depart from the conventional, as long as he does not depart from structural stability.

Public Finance Biblography

TAX INSTITUTE BOOKSHELF.—*Tax Institute, Inc., 150 Nassau St., New York 7, N. Y.* 1946. 29 *pp.*

Periodical bibliography of current public finance literature. This number, covering December 1945 through March 1946, includes general and specific citations to reference material in the fields of taxation, expenditures, public debt, intergovernmental fiscal relations, administration, and international and foreign public finance. While there is no separate subscription rate for the *Tax Institute Bookshelf*, it is available to all general, service, and sustaining members of the Tax Institute.

City Plan and Railroads

RAILROADS IN THE CITY PLAN.—*Compiled in the Library of the Department of Landscape Architecture and Regional Planning, Harvard University, Cambridge, Mass. January* 1946. *Mimeo.* 7 *pp.*

Bibliography compiled under the direction of Miss Katherine McNamara, Librarian. The list is divided into general and local references and contains citations both of books and articles in periodicals.

Problems of the Air Age

AVIATION TRANSPORT.—*Law and Contemporary Problems Vol. XI, No. 3. School of Law, Duke University, Durham, N. C.* 1946. 630 *pp.* $1.

Symposium presenting a series of surveys of an economic and legal nature about the role of aviation, its regulation and liability, taxation, and some recent international developments.

Included, among others, is an article by Charles S. Rhyne, entitled "Federal, State and Local Jurisdiction over Civil Aviation." There are other articles discussing the economic role of air transport, the conflicting interests of airport and property owners, the tax questions arising in the airport program, and many other problems which are just beginning to be explored.

Streamlining Coventry

THE FUTURE COVENTRY.—*Published by The Corporation of Coventry, Coventry, England. Illus.* 44 *pp.* 2 *Shillings,* 6 *pence.* (*approx.* 40¢)

Some proposals and suggestions for the physical reconstruction and planning of the city of Coventry, first English city to be blitzed by the Germans during the war. This booklet, arranged somewhat like a master plan, covers Roads and Transport, Industry, Housing, Amenities, Central Redevelopment. Every section contains numerous photographs and multi-colored maps to illustrate the extensive reorganization of all aspects of urban life planned by the city.

Special stress is put on recreational facilities, open spaces, landscaping, and the utilization of the latest technical and scientific developments to make Coventry more beautiful to look at and more comfortable to live in.

Altogether this publication is a very attractive piece of work, both as to form and contents which might well serve as a model report, in that it combines technical data and factual information with a popular approach and magazine appeal.

Four Reports on Public Works

CURRENT AND SUGGESTED STREET CLEANING AND MAINTENANCE PRACTICES IN AMERICAN CITIES.—*American Public Works Association.* 1313 *East 60th St., Chicago 37, Ill.* 1945. 18 *pp.* 75¢.

THE DYNAMICS OF STREET LAYOUT AND DESIGN FOR URBAN TRAFFIC.—18 *pp.* $1.

AIRPORTS: LOCATION, DESIGN, FINANCING, ZONING, AND CONTROL.—22 *pp.* $1.

A TRANSPORTATION SYMPOSIUM: WATERWAYS, AIRWAYS, RAILWAYS, AND HIGHWAYS.—34 *pp.* $1.

Bulletins 25, 26, 27, 28 which present a portion of the proceedings of the 1944 Public Works Congress. It is intended that these bulletins, in their entirety, will take the place of the *Public Works Engineers' Yearbook* which formerly was published as a single bound volume.

The report of the APWA Committee on Street Cleaning and Street Maintenance contains the practices of several communities and the recommendations of public works officials thoroughly conversant with the field of activity.

The report on urban traffic and street design urges cooperation between the traffic analysts and the city engineers of the nation.

The Committee on Airports engaged in a comprehensive study of the airport problem during 1944. The Committee presented its findings at the 1944 Public Works Congress. Resolutions favoring a national airport system and the creation of state airport authorities were passed at this annual meeting of the Association.

The report on transportation contains several papers dealing with waterways, airports, highways, and other aspects of transportation as it relates to public works.

Something to Be Proud Of

PUBLIC HOUSING: THE WORK OF THE FEDERAL PUBLIC HOUSING AUTHORITY.—*National Housing Agency, Washington, D. C. March* 1946. *Illus.* 45 *pp.* 20¢

This recent pamphlet published by FPHA gives a resumé of the activities of that agency during the war and since the war's end. A whole section is devoted exclusively to the war housing job, including public housing, private housing, publicly financed war housing, and war housing after the war. Another section tells the story of the low-rent housing program, including the administrative, financial, and social aspects of such a program.

Numerous photographs illustrate better than words could the implications of public housing for low-income groups and the eradication of slums in both rural and industrial areas. The pictures also give at least an indication of the tremendous job done by FPHA during the war and the credit which is due that agency for making war production successful.

Civil Service Pensions

PENSIONS FOR DEATH OR DISABILITY INCURRED BY CITY EMPLOYES WHILE IN ARMED FORCES.—*By Charles S. Rhyne. National Institute of Municipal Law Officers, 730 Jackson Place, N.W., Washington 6, D. C.* 1946. 33 *pp.* $2. (*free to members*)

This report, covering a subject which must interest many municipal legal departments at this time, was compiled on the basis of information received by NIMLO in answer to a questionnaire. Many city attorneys have reported their own personal experiences in dealing with the problem under discussion, which should prove immensely helpful to officials now faced with the legal ramifications of claims and counterclaims.

There is a general discussion of the whole question of rights to pensions for death or disability incurred in military service. The booklet further includes specific state statutes and city regulations, court decisions, and opinions.

The Mayors on Post-War Problems

CITY PROBLEMS OF 1945-1946.—*The Annual Proceedings of the United States Conference of Mayors. Edited by Paul V. Betters.* 730 *Jackson Place, Washington, D. C.* 1945. 163 *pp.*

A complete record of the annual conference which took place in New York City December 10-12, 1945. Devoted almost exclusively to the cities' role in the post-war period of reconversion, the conference was addressed by, among others, Paul G. Hoffman on employment problems, William L. Laurence on the atomic bomb, Maj. Gen. Philip Fleming on the national airport program, John B. Blandford on housing, Gen. Omar Bradley on the veterans, and Dr. Thomas Parran on national health.

The conference also heard the final presidential address of F. H. LaGuardia, which is included here in its entirety, as is the address of Mayor Ed Kelly of Chicago, new president, who presented a Packard car to his famous predecessor on behalf of the Conference.

Planning Activities in the West

CALIFORNIA PLANNING.—*State Reconstruction and Reemployment Commission.* 1946. 65 *pp.*

Based on annual reports of city and county planning commissions, this report deals with the objectives, history, planning laws and planning activities of California planning commissions, and includes a roster of planning commission members, city and county. The booklet further includes a suggested outline of annual report for planning commissions, and the official wording of the Planning Act, together with statistics, and two maps. This publication can serve as a handy source of reference on planning activities in the state of California.

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Off-Street Parking

KEEP CUSTOMERS COMING.—*American Retail Federation, 1627 K St. N.W., Washington 6, D. C. 1946. Illus. 28 pp.*

Practical suggestions for obtaining off-street parking prepared by the American Retail Federation with the aid of the Automotive Safety Foundation. This large brochure, extensively illustrated with photographs and two-color cartoons, compiles solutions for parking problems in metropolitan areas which have been successfully tried out in various cities.

Maps and models of municipal parking lots, as well as suggestions for cooperative action on the part of municipal officials, retail merchants, and other interested groups to avert the traffic crisis make up the major part of this booklet. It includes examples of zoning legislation and parking ordinances that could be applied by cities faced with traffic difficulties. Included also is a list of selected references on the subject.

Legal Aspects of Housing Program

LEGAL AND STATUTORY MATERIALS FOR CITY USE IN MEETING THE VETERANS HOUSING EMERGENCY.—*By Charles S. Rhyne & Philip H. Hill. National Institute of Municipal Law Officers. 730 Jackson Place N.W. Washington 6, D. C. 1946. 24 pp. $2—(free to members).*

Proposed model ordinance prepared at the request of cities to aid in setting up an emergency housing committee, as suggested by National Housing Administrator Wilson W. Wyatt, and for proper authorization to the mayor to enter into agreements with federal housing agencies. Also included is a copy of the so-called "Mead Resolution" which authorizes the National Housing Agency to transfer temporary housing to cities to provide shelter for distressed families of servicemen and veterans. Appendix 3 contains Administrator Wyatt's program together with his recommendations for local community action.

Municipal Accounting

ACCOUNTING MANUAL FOR SMALL CITIES OF THE STATE OF WASHINGTON.—*By Arthur N. Lorig. Published through the cooperation of Division of Municipal Corporations of the Office of State Auditor; Bureau of Governmental Research and the College of Economics and Business of the University of Washington; Association of Washington Cities. 1945. 154 pp. $1.50.*

This manual was prepared at the request of the three interested organizations who cooperated in its publication. It has had the backing of many officials of small cities in the state of Washington. While the manual does not present a complete double entry system of accounting, the procedures outlined do provide sufficient financial information and a satisfactory check as to accuracy of the accounts.

Where Public Administration Is Taught

EDUCATIONAL PREPARATION FOR PUBLIC ADMINISTRATION.—*A list of colleges and universities offering programs of training. Public Administration Clearing House, 1313 East 60th St., Chicago 37, Ill. 1946. Mimeo. 13 pp.*

A useful pamphlet for veterans and others who wish information about academic training in the field of public administration. For easy reference, information is given on the type of program offered by various colleges and universities, such as public administration concentration in political science department or interdepartmental program; also the degrees granted, and the head of the department.

Erosion on Long Island

REPORT TO THE LEGISLATURE OF THE STATE OF NEW YORK.—*By the Joint Legislative Committee studying the problem of checking erosion along the North Shore of Long Island. February 1946. Illus. 51 pp.*

A committee of the legislature investigating the problem of erosion along the Atlantic Coast line of the state submitted this report, including both findings and exhibits to illustrate the facts and data covered in the report. Among the facts brought out after careful study are the following:

Erosion is proceeding at a rapid rate and is causing widespread damage to homes and shore installations. Erosion control will require continuous construction based upon plans to be carried out over a period of years. The committee recommends that studies and investigations be carried on to protect the public interest in the waterfront areas.

Specific recommendations for specific waterfront areas are included, plus illustrations of affected shorelands on north Long Island.

Taxation and Public Credit for Urban Land Assembly

LAND ASSEMBLY FOR URBAN REDEVELOPMENT.—*National Housing Agency, Washington, D.C. December 1945. 39 pp. 10¢.*

One of a series of studies dealing with major problems in the resumption of peacetime home-building in the United States, compiled under the general direction of Coleman Woodbury, Assistant Administrator of NHA.

This bulletin is chiefly concerned with the contribution of taxation and public credit to urban land assembly. It is attempted here to explore ways of bridging the gap between the acquisition price of urban land and the cost of using it so as to make it available for new home building, and to indicate the bearing of land cost on the monthly charge to the family residing in the new home.

Other Reports Received

ALBANY, N. Y.—*Waterfront Arterial Highway* 1946. Report on traffic conditions by Parsons, Brinckerhoff, Hogan and MacDonald, Engineers. 1946. Illus. 46 pp.

ATHOL, MASS.—Fortieth Annual Report of the Water Commissioners for the Year Ending December 1945. 18 pp.

BERGEN COUNTY, N. J.—Annual Report of Progress 1945. County Planning Board, Hackensack, N. J. 1946. Mimeo. 15 pp.

CLEVELAND, OHIO.—*Cleveland Market Data Handbook.* Real Property Inventory of Metropolitan Cleveland. By Howard Whipple Green. 1945 Ed. 69 pp. $2.50.

JAMESTOWN, N. Y.—Annual Report 1945. Board of Public Utilities. Illus. 36 pp.

KANSAS CITY, MO.—*Your City Government.* Annual Report 1944-1945. Illus. 48 pp.

MOUNTAIN BROOK, ALA.—*Planning Data.* Mountain Brook City Planning Commission in Cooperation with the Jefferson County Regional Planning Commission and Alabama State Planning Board. Mimeo. 22 pp.

PORTLAND, ORE.—Annual Report of the City Auditor. 1945. 124 pp.

SPRINGFIELD, MASS.—*Airport Survey and Recommendations.* Future Springfield, Inc., 1383 Main Street, Springfield, Mass. 1946. Illus. 15 pp.

Emergency Housing Study and Recommendations. 1946. Illus. 15 pp.

TOLEDO, OHIO—*Transportation Report: Central Business District.* Parsons, Brinckerhoff, Hogan and MacDonald, Engineers. 1946. Illus. 46 pp.

WILLIAMSTOWN, MASS.—Annual Report 1945. Illus. 1,123 pp.

Conventions—When and Where

(*Continued from page 143*)

Sept. 24-27—Boston, Mass.
NATIONAL ASSOCIATION OF ASSESSING OFFICERS. National Conference on Assessment Administration (Hotel Statler). Exec. Dir., Albert W. Noonan, 1313 E. 60th St., Chicago, Ill.

Sept. 26-28—Harrisburg, Pa.
PENNSYLVANIA LEAGUE OF THIRD CLASS CITIES. Annual Convention (Hotel Penn Harris). Pres., Walter Greenwood, 320 Municipal Bldg., Harrisburg, Pa.

Oct. 3-5—Columbus, Ohio
INSTITUTE OF TRAFFIC ENGINEERS. Annual Meeting (Hotel Deshler-Wallich). Sec.-Treas., Wilbur S. Smith, Strathcona Hall, New Haven 11, Conn.

Oct. 7-9—Toronto, Ontario
FEDERATION OF SEWAGE WORKS ASSOCIATIONS. Annual Meeting (Hotel Royal York). Sec., W. H. Wisely, 325-26 Illinois Bldg., Champaign, Ill.

Oct. 9-11—Columbus, Ohio
AMERICAN WATER WORKS ASSOCIATION—OHIO SECTION. Annual Conference (Hotel Fort Hayes). Sec.-Treas., F. P. Fischer, c/o Wallace & Tiernan, 811 Perry Payne Bldg., Cleveland 13, Ohio.

Oct. 14-17—Galveston, Texas
AMERICAN WATER WORKS ASSOCIATION — SOUTHWEST SECTION. Annual Meeting. Sec., L. A. Jackson, Mgr., Little Rock Water Works, Little Rock, Ark.

***Oct. 28-30—Pittsburgh, Pa.**
ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA. Annual Water Conference (Hotel William Penn). Conference Chairman, H. M. Olson, Hotel William Penn, Pittsburgh, Pa.

***Nov. 11-15—Cleveland, Ohio**
AMERICAN PUBLIC HEALTH ASSOCIATION. Annual Meeting (Public Auditorium). Exec. Sec., Dr. Reginald W. Atwater, 1790 Broadway, New York 19, N. Y.

The Municipal Bond Market

Some sales of new issues as reported in March issues of *The Bond Buyer*:

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
$9,640,000	Los Angeles, Calif., Dept. of Water and Power, Electric Plant Refunding	1	3/15 O. A. Prem.	1.17183
100,000	Bryan, Ohio, Electric Light and Power Mortgage Revenue	1	5/9.75 O.-A.	.94
260,000	Hickory, N. C., Water	1	20-32 Ser.	1.1792
1,650,000	St. Louis Co., Mo., Courthouse and Jail	1	14 Avg.	.896
500,000	Birmingham, Ala., School Bldg.	1	11-15 Ser.	1.2648
150,000	Chatham Twp., N. J., School Dist.	1	1-15 Ser.	.986
120,000	Jefferson Twp., Pa., School Dist.	1.25	1-20 Ser.	1.07
160,000	Lee, Mass., Water	1.25	14.83 Avg.	1.118
125,000	Salem, Ore., Park and Playground	1.25	4.5/10.75 O.-A.	.993
557,000	Tacoma, Wash., Water Revenue (Non-callable)	1.25	11.66 Avg.	1.1560
185,000	Riverside Co., Calif., Ind., School Dist.	1.5	8 Avg.	1.39
613,000	Port Huron, Mich., Garbage Disposal and Sewer System Revenue	1.75	9.33 Avg.	1.349
144,000	Florence, Ala., Water Works Extension Refunding	1.75	8.5/14.17 O.A.	1.956
651,000	Letcher Co., Ky., Road and Bridge Refunding of 1946	2.5	13.17/40 O.A.	2.317
125,000	Galena Park, Texas	3.5	14.25 Avg.	3.456

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MODERN developments in steam generation and distribution have greatly expanded the field of Central Heating, making this service more practical than ever for industrial or commercial groups, large and small housing projects, airports, institutional buildings—even entire cities.

The Modern steam plant is a marvel of technological development. Automatic controls and other devices for efficient fuel feeding and consumption extract every possible B.T.U. from the coal burned. Smoke abatement equipment helps efficiency and minimizes air pollution. Induced draft chimneys make it possible to forego high stacks. Architectural design makes the plant an attractive addition to any community.

Modern systems of steam distribution now pipe steam longer distances with lower heat losses than ever before. Our job at Ric-wiL is the manufacture of such systems. It has been our constant aim to improve our product to keep pace with improvements in steam generation. Our research and development departments are engaged in a continuing search for better construction methods, greater efficiencies, lower costs.

Ric-wiL Prefabricated Insulated Pipe Systems are now actually being installed *with steam pressure at 650 PSI with superheat.* Higher pressures are possible, thus opening up a vast new field of applications for Central Heating.

A combination of built-in features is responsible for this achievement. Full-welded and reinforced construction means pressure-tight conduit, assuring highest thermal efficiency by maintaining completely dry insulation. Conduit is permanently protected against ground conditions by double coating of high melting point asphalt, reinforced with asbestos felt.

The Ric-wiL system of unit prefabrication eliminates costly field work and saves valuable installation time. Completely assembled units, engineered and specifically tailored for each project, are delivered to the job with couplers designed to facilitate field connections. Because of structural strength, 18" of ground cover is sufficient under highway loading—minimizing excavation and backfill. Ends of units are presealed, assuring dry interior under any weather or water conditons during installation.

Ric-wiL has prepared a series of project studies showing practical applications of Central Heating to industrial buildings, large and small housing projects, commercial groups, airports, and entire communities. These are available on request.

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AGENTS IN PRINCIPAL CITIES

News and Illustrations

Items of Interest to City, Town and County Officials and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

The Bucket Loader is Gar Wood's all-enclosed refuse collector.

Gar Wood Makes Announcements

Gar Wood Industries, Inc., Detroit, Mich., has introduced a new all-enclosed refuse collector called the Bucket Loader designed to meet the demands of health officials throughout the country for this type of unit.

The all-steel, all-welded body comes in two sizes, 6¼ or 8½ cubic yards, according to W. H. Hammond, vice-president in charge of sales. The body is supplied with the Gar Wood hydraulic hoist for dumping. The loading bucket is suspended at a low level to prevent fatigue or injury to the loaders, and the controls are simple. A full-opening water-tight tail gate insures rapid discharge and easy accessibility for cleaning and flushing.

Operation is as follows: the body is raised by the hoist, and the loaded bucket travels simultaneously to the top of the body. It dumps its contents through a hatch cover which opens and closes automatically. As the body is lowered, the bucket goes back to the loading position. By unloading the bucket when the body is elevated, the refuse is gravity-packed to the rear to assure capacity loads.

R. J. Nymberg

The company also announced the following appointments: R. J. Nymberg has been named sales manager of the hoist and body division. He joined the company in 1921 as body engineer and was made sales engineer in 1932.

Henry Husbands has been named to assist Amos E. Heath, district manager of the company's general line in Washington, in contacting government agencies. He was formerly with the Navy Bureau of Aeronautics.

Ross Miller, district manager of the general line, is acting temporarily as manager of the Philadelphia branch (hoist and body division), succeeding A. E. Hilderley, who retired. Edward F. Kreutzfeld has been named service manager of the hoist and body division to succeed Mr. Miller.

William F. Keeton has been placed in charge of the company's newly-created advertising department.

Charles J. Hoffman has been placed in charge of Gar Wood's newly-formed export department.

A New File Folder

Redi-File, a newly developed type of hanging file folder, tends to increase the efficiency of both personal files and general files. It is tailored to fit any size desk drawer. Angle tabs on hanging folders make papers easy to locate. The arrangement of the folders requires no follower block to hold paper upright. Folders cannot sag or bind —whether they be few or many, full or empty.

Redi-File folders are constructed of durable Remcraft stock with metal hangers and tabs. Systems and Methods Research Dept., Remington Rand, Inc., 315 Fourth Ave., New York 10, N. Y., will give you further details.

The company has also announced that the Remington Rand Tabulating Machines Institute was opened in Washington on December 10, 1945, to assist government officials in the application of punched card accounting methods to complex government problems, first by affording educational opportunities for government personnel and, second, by providing tabulating facilities for government departments which do not ordinarily maintain tabulating installations.

Norman Haig Promoted at General Motors

Norman K. Haig, former director of the General Motors War Products Training Service, has been appointed director of the government sales section of the distribution staff, according to a recent announcement by C. E. Wilson, president. His headquarters will be in Detroit and he will report directly to

Norman K. Haig

W. G. Lewellen, vice-president in charge of the distribution staff. This section is responsible for domestic sales of GM cars and trucks to the federal and state governments.

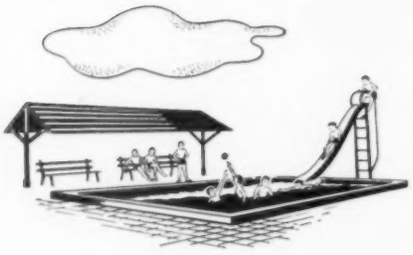
Mr. Haig has been associated with General Motors since April 1923 when he joined the accounting department of the Chevrolet Motor Division. In 1927 he was transferred to Richmond, Va., as manager of the Chevrolet zone office. In 1929 he returned to Detroit in the Chevrolet central office as manager of fleet sales and governmental activities.

Mr. Haig was appointed director of governmental sales for Chevrolet in October, 1933 and three months later was transferred to the central office of the organization as director of governmental sales.

He was appointed assistant director of General Motors War Products Training Service in February 1942 and director of the War Products Training Service in 1945.

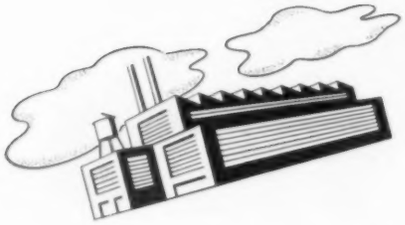
FOR THE HOUSING DEVELOPMENT

Slum clearance and unprecedented population growth in recent years have greatly increased demand for good municipal water.



FOR PLAYGROUNDS

Proposed civic centers for recreation, such as swimming pools, will require great quantities of water and it must be *good* water.



FOR NEW INDUSTRIES

To attract new business, which provides jobs, a city must provide plenty of good water, industry's most important raw material.

FOR THE AIRPORT

As air travel becomes an integral part of our living, more and more of a city's supply of treated water must be allocated for airport use.

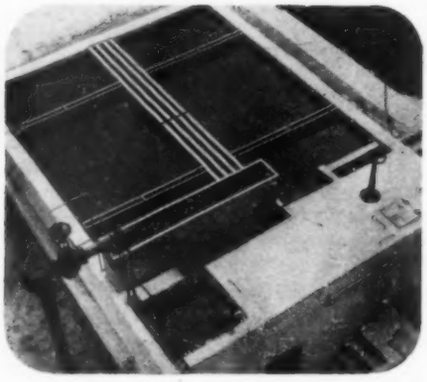
Will the WATER be good enough?

In *your* city's plans for better living, what about water? Is it *good enough* to meet the many *new* demands for municipal water—from builders, from industry?

Permutit* conditioned water comes into the home, hospital, playground and factory soft . . . clear . . . iron-free. It's the best treatment a city can give its water supply.

No wonder so many municipalities have turned to Permutit for the good water called for in postwar plans of city planning commissions. For your own information, write The Permutit Company, Dept. M4, 330 West 42nd Street, New York 18, N. Y. or Permutit Co. of Canada, Ltd., Montreal

*Trademark Reg. U. S. Pat. Off.



PERMUTIT SPAULDING PRECIPITATOR removes water hardness, dirt and color by the sludge blanket process. This new-design equipment cuts detention time, saves chemicals, takes only half the space of former methods. Present installations handle up to 120,000,000 gallons daily.

For more than 30 years **PERMUTIT**

WATER CONDITIONING HEADQUARTERS

New Demand-Type Oxygen Mask

Mine Safety Appliances' new oxygen mask which operates on the demand principle and supplies fresh oxygen to to the wearer as required by his breathing rate.

Of special interest to police and fire departments, as well as public utilities, is the demand-type oxygen mask for respiratory protection in unbreathable atmospheres recently introduced by the Mine Safety Appliance Co., Pittsburgh, Pa. The mask is a cylinder-type oxygen breathing apparatus always ready for use and requiring no special training or practice for operation—the wearer simply puts on the mask, opens a valve, and breathes.

Two types are available. One has an oxygen cylinder that is worn on the wearer's back supported by an adjustable harness. Enough oxygen is supplied for approximately one hour of normal breathing. The other is a front-sling model with a smaller cylinder for shorter periods. Both provide oxygen exactly as needed by the wearer. This is possible because of the demand regulator with which the mask is equipped.

The mask has a pressure gage which indicates the amount of oxygen in the cylinder at all times. The breathing tube is quickly disconnectable for conservation of oxygen during stand-by periods. Fogging of the all-vision facepiece is prevented by a flow of cool oxygen over the lenses.

Attractive Transit Service

Transit vehicles relieve congestion when they are sufficiently used in place of automobiles. This tends to happen when city transportation system has comfortable modern vehicles and a good schedule. A new 28-page pamphlet in color issued by the General Electric Co., Erie, Pa., urges that cities modernize with vehicles best suited to traffic conditions and contains a table showing the number of each type required to carry from 500 to 80,000 passengers an hour. To quote: "Depending upon the traffic requirements, the answer may be buses, trolley coaches, modern streetcars, or rapid transit. In general, the gas bus should be used on lines of lightest traffic; the trolley coach in the intermediate range; the streetcar for the very heaviest surface traffic; and rapid-transit systems.

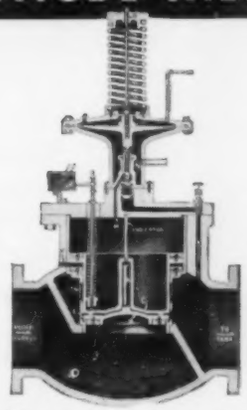
Krause Returns to Neptune

Charles W. Krause has rejoined the Neptune Meter Co., 50 W. 50th St., New York 20, N. Y., as a sales engineer of the Boston territory, according to a recent announcement.

Charles W. Krause

Mr. Krause served for four years with the U. S. Army in an Engineer Topographic Company, attached to the First and later the Third Army, in France, Belgium, Holland, and Germany. Before joining the army he was a draftsman in the Neptune's Engineering Department.

AUTOMATIC "STOP-STARTER" GOLDEN-ANDERSON ALTITUDE VALVES



Eliminate all water surges and shock

Installed where a single line is used for both supply and discharge, the valve will maintain a constant water level within 3" to 12" variation and by means of the "stop-starter" switch stops the pump as the valve closes.

Let GOLDEN-ANDERSON Engineers, Solve your Flow Control Problems!

GOLDEN-ANDERSON VALVE Specialty Company
FULTON BUILDING • PITTSBURGH 22 PA

The Ear That Locates Underground Leaks

GLOBE GEOPHONE

Locates leaks in water, air, and steam pipes quickly and accurately.

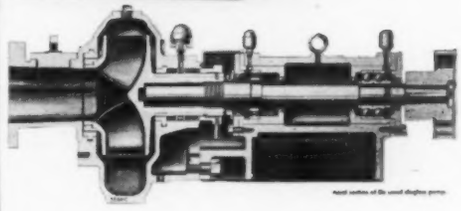
Many times the Geophone on one leak alone saves more than the cost of the instrument. Successfully used for 25 years by many Water Systems, Industrial Plants, and U. S. Government Plants.

No water system, industrial plant, institution having underground piping, water, air, or steam, can afford to be without a Globe Geophone in their Maintenance Department. One Water Service Company has over 39 Globe Geophones in use in their various systems. The Globe Geophone is a time and money saver. It conserves water and steam.

Price Complete with Leather Covered Carrying Case and Shoulder Strap... **$75.00**

SEND FOR FOLDER AND MORE DATA

GLOBE PHONE MFG. CORP.
Department H, Reading, Mass.



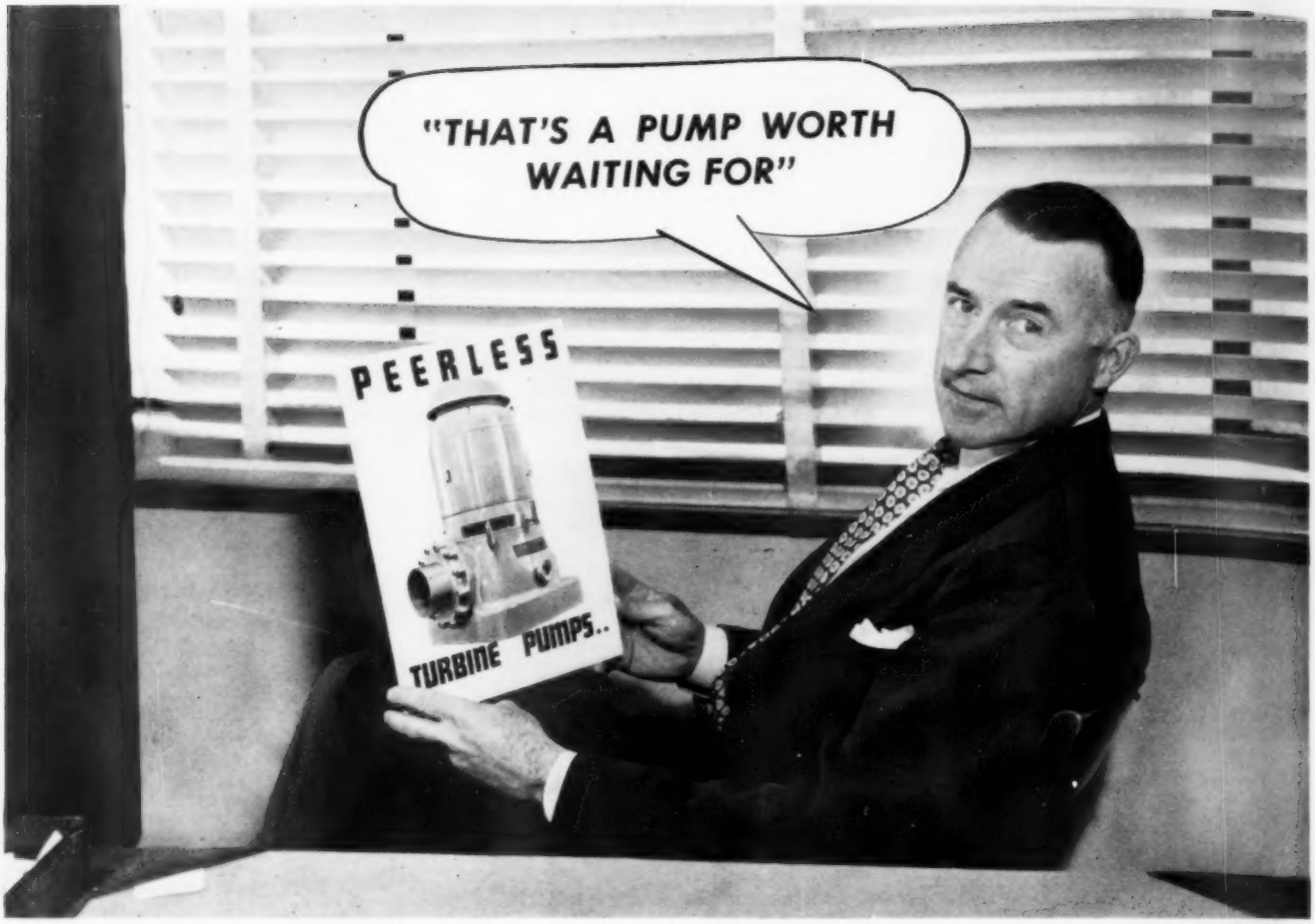
All wearing parts in a De Laval Clogless Pump are readily renewable. The pump casing is split at the center line of the shaft to give access to the interior. The efficiency of the pump can be quickly and inexpensively restored by replacing the renewable wearing rings on the impeller and in the casing. Without this De Laval feature replacement, machining or rebuilding of the impeller and re-machining of the casing would be necessary to restore original clearances.

De Laval Clogless Pumps are built for long life, and sustained efficiency.

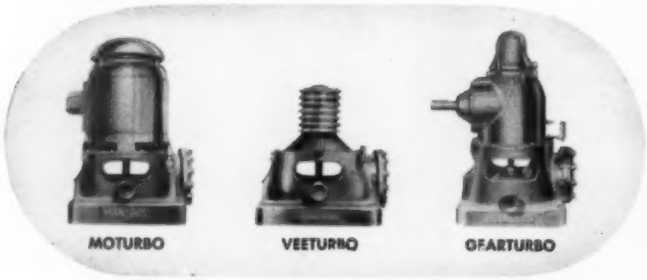
Write for Catalog P-1250.

3309

DE LAVAL STEAM TURBINE COMPANY
TRENTON 2, NEW JERSEY



The Time is Approaching When You Can Again Get a *PEERLESS*



The Peerless Line is Most Complete

Deep Well Turbine Pumps
Vertical Types
Oil or Water Lubricated
Capacities: 15 to 30,000 g.p.m.

Horizontal Centrifugal Pumps
For General Service
Solid, Volute, and Split-Case Types
Capacities: 2 to 70,000 g.p.m.

Also Jet and Water King Domestic Water Systems

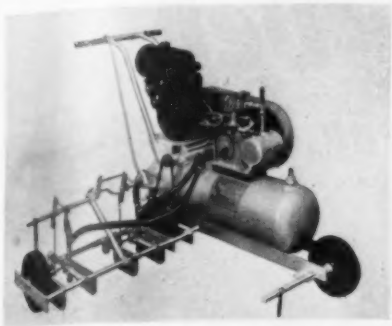
● Like thousands of others, you've probably put a new water pump at the top of your *must* list of improvements. *"Will I be able to get a Peerless?"* you ask. The answer is sounding more cheerful every day. *Yes, you will,* in the not too distant future. The big Peerless back-log of orders is being worked on 24 hours a day. The situation improves daily. But don't wait to place your order until your need becomes desperate. Consult with the nearest Peerless Distributor now and get your order on file. We'll do everything within our power to deliver your needed pump as soon as we can. Certain types can be delivered sooner than other models—so check with Peerless now.

PEERLESS PUMPS

PEERLESS PUMP DIVISION
Food Machinery Corp.

Los Angeles 31, Calif.
Quincy, Ill. Canton 6, Ohio

Street and Line Markers



The Spies straight-edge marker for municipal street work.

Street and airport officials will be interested in the Spiess straight-edge street and line markers. For crosswalks, safety zones, parking areas, and any moderate amount of line striping there is the hand-propelled marker. For large marking jobs such as street center line or airfields, there is a model equipped with power drive.

All controls are located at the fingertips of the operator. The markers may be converted for all-purpose spraying or painting of traffic signs, park equipment, guard rails, bridges, or fences. A motor-driven compressor provides pressure for atomizing paint spray for painting lines 2 to 6 inches wide. The hand-propelled markers can be converted to power drive, or equipped with the double line or two-color triple line attachment.

Write G. N. Spiess Equipment Co., 6823 Aetna Court, Milwaukee 13, Wis., for literature.

Nebraska State Police Uses Radiotelephone

Nebraska State Police recently awarded a contract for its radiotelephone communications equipment to the Galvin Manufacturing Corp., 4545 W. Augusta Blvd., Chicago, Ill., according to an announcement by Eugene Goebel, Sales Manager, Communication Division. This award brings to 35 the number of state police organizations now using Motorola equipment.

Mr. Goebel emphasized that Galvin was not the low bidder in the competition and that the award was made on the basis of past performance of Motorola equipment.

Nebraska's new system will consist of seven 250-watt and five 50-watt central stations, and 60 portable mobile units. The sale was transacted by Eugene Brown just four weeks after his release from the armed forces.

Plan Your Airport Before It's Built

Cities planning airports would do well to obtain first a thorough and competent engineering study covering location and prospects for freight, mail, and passenger traffic.

A convenient location and easy accessibility by good roads, flying schools and clubs, merchandising, restaurants, entertainment and recreational facilities are all items which may contribute to the ultimate success of an airport and should receive careful consideration.

The intelligent analysis of these various factors results in a better forecast of the demands likely to be made upon the field which in turn, determines the facilities necessary for efficient and economical operation.

On this subject the Luria Engineering Corp., 500 Fifth Ave., New York 18, N. Y., has issued a booklet showing designs, standard and custom tailored hangars, including economical T-hangars for the small plane.

Hill-Hubbell Engineer Returns to Firm

Bryan Patterson has returned to the staff of Hill-Hubbell & Co. Division of General Paint Corp., Cleveland, Ohio, as pipeline corrosion engineer after a four-year leave of absence.

When the war began Mr. Patterson was loaned by Hill-Hubbell to the U. S. Engineers for special wartime emergency service. During this time he carried out some highly interesting engineering assignments, including the expediting of engineering operations in DDT production and other chemical processes. Mr. Patterson will have charge of all Hill-Hubbell engineering services in the western states.

CASE HISTORY No. 7

Water Softening Plant, Fremont, Ohio

A SOFTENING PLANT

Wm. H. Schneider, Supt. & Chemist

Water Filtration Plant, Fremont, Ohio

"The City of Fremont, Ohio located on the Sandusky River in North Central Ohio, in the year of 1928 designed and built a water softening plant to handle 3,000,000 gallons of water per day. The plant was planned to soften and purify the very flashy Sandusky river water, with a turbidity reaching 3,000 p.p.m. and hardness up to 660 p.p.m.

"The plant was of a conventional design, employing Lime and Soda Ash for softening and Alum for coagulation. Trouble was encountered in forming a satisfactory floc in the colder months, especially with high turbidities. As the city grew and the demand increased, it was necessary to find a remedy for this condition, and after running laboratory tests indications were that an iron salt would give better results. An old feeder was converted so as to make it possible to run a plant scale test, using FERRI-FLOC.

"The conclusions reached from this plant test prompted our purchasing new feeding equipment suitable for feeding FERRI-FLOC. As a result of this change, we have secured a more satisfactory finished water throughout the entire year.

"Our thanks to the Technical Staff of the Tennessee Corporation for their assistance in solving our problem."

(signed) Wm. H. Schneider

TENNESSEE CORPORATION

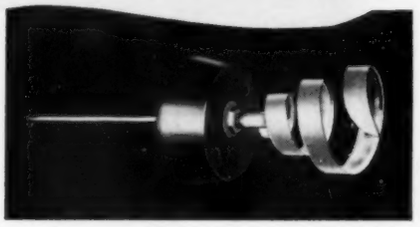
Manufacturers of Ferri-Floc

Atlanta, Georgia **Lockland, Ohio**

Your Sewer Dept. can be as Modern as the Fire Dept.

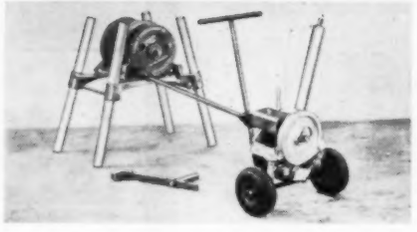
with FLEXIBLE SEWER ROD EQUIPMENT

City by City Sewer Departments have learned about the time and labor-saving features of Flexible Sewer-Rod Equipment.



Flexibles Standard City Set includes 4 Cork Screws (Assorted sizes) and many other attachments, 1 Pickup Tool, 3 Turning Handles Rod Reel, Stand and Jack, 1 Pull Out, 1 Assembly Tool.

City Sewer Dept. heads will tell you three men can thoroughly clean 2000 ft. of pipe a day. That's why 78% of the cities in the U.S.A. use Flexibles.



Flexibles save money 3 ways: (1) Faster Cleaning with a Smaller Crew. (2) Fewer Dig-ups. (3) Less Patches in the Streets.

IT'S FALSE ECONOMY to continue old outmoded pipe cleaning methods. Modernize your Sewer Department with FLEXIBLE SEWER ROD EQUIPMENT. You'll soon save enough to pay for your set of FLEXIBLES.

FLEXIBLES pay for themselves an average of Five Times every year. That's because a few men equipped with FLEXIBLE TOOLS can clean more underground pipe than an entire crew working with old outmoded methods. FLEXIBLES eliminate the time-consuming unsanitary part of the work.

FLEXIBLE methods eliminate 50% of the "Dig-ups" usually required. When you figure costs for cleaning sewer lines, remember "Dig-ups" are expensive.

No matter what causes the stoppage, sand, roots, rocks, marine growth or anything else, FLEXIBLE has a tool that will do the cleaning job.

Let FLEXIBLE show you how to *modernize* and *save*.

WRITE FOR ILLUSTRATED BOOKLET.

615 Pickwick Bl. Kansas City 6, Mo.
1624 Harmon Pl. Minneapolis 3, Minn.
P. O. Box 165 Atlanta
P. O. Box 694 Gulfport, Miss.
41 Greenway St. Hamden, Conn.
1208 W. Chase Av. Chicago 26
147 Hillside Ter. Irvington, N. J.
P. O. Box 694 Pittsburgh
401 Broadway New York 13
29 Cerdan Ave. Roslindale 31, Mass.

Flexible SEWER ROD EQUIPMENT CO.

9059 VENICE BOULEVARD • LOS ANGELES • CALIF.

Halliday Joins Consolidated Diesel

Stuart E. Halliday has joined Consolidated Diesel Electric Corp., 230 East 8th St., Mount Vernon, N. Y., to supervise sales and advertising of their electric generating sets.

Stuart E. Halliday

Mr. Halliday attended Northwestern University up to 1932 and has had wide experience in merchandising, having served the hotel, hospital and chemical industries. For the last nine years he has been connected with the Novacal Chemical Co., as a salesman and sales manager.

The corporation has just moved to its new plant at Mount Vernon which has a total manufacturing space of 33,000 square feet and office space occupying two floors.

New Pump Folder

Peerless Pump Division, Food Machinery Corp., Los Angeles 31, Calif., has issued a new bulletin (B-136) presenting sixty types and styles of vertical and horizontal pumps.

Among the types included are deep and shallow well pumps, Hi-Lift pumps, and domestic water systems.

Brooks Equipment & Mfg. Co. Appoints Acting Sales Mgr.

John W. Peters, sales representative for the company, has been named acting sales manager of the Brooks Equipment & Mfg. Co., Knoxville, Tenn., according to E. N. Brooks, president. Mr. Peters replaces R. S. Tucker who resigned.

H. H. Houston, Jr., is in charge of sales promotion for the Manufacturing Division of the company.

Traffic Zoning Paint

Would you like to cut down on the need for frequent repaintings of traffic zoning areas on streets, parking lots, and airports? Recent improvements to porcelite zoning paint, manufactured by Thomson-Porcelite Paint Co., Third and Brown Sts., Philadedphia, Pa., help to cut down this expense by saving labor and materials. The paint is claimed to hold tenaciously to the surface and retain its color and visibility for long periods for both interior and exterior use, resisting wear from even the heaviest traffic.

This paint will dry in twenty to thirty minutes so that valuable areas may be utilized in the shortest possible time.

Porcelite paint may be used on interior and exterior surfaces of wood concrete, macadam, creosote block, asphalt, and special composition. It is available in white and yellow and may be applied by lining machine or by hand.

Rockwell Meter Division Sponsors Contests

Two contests designed to stimulate public thinking about the community benefits resulting from a program of metering all water services has been announced by the Rockwell Manufacturing Co., Pittsburgh Equitable Meter Division, Pittsburgh 8, Pa. A total of $2,000 in cash will be awarded with the first prize of $500 in each contest.

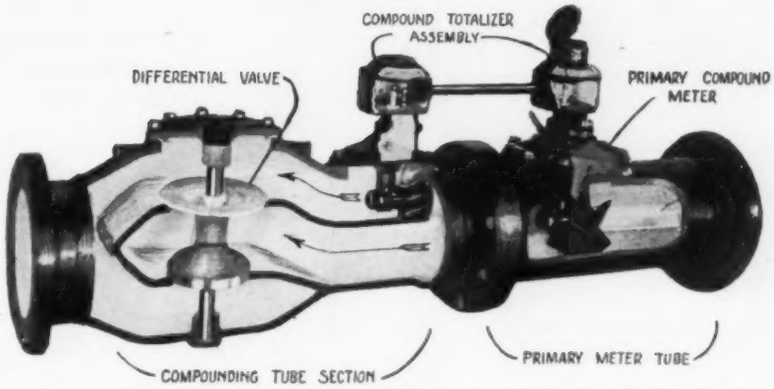
The first contest requires writing the last line of a jingle about 100 percent metering. The second contest is the essay type in which the contestant is asked to write a paper of 2,000 words or less on the subject "How a Community is Benefited by Metering All Services."

Details, rules and regulations, and entry coupons are appearing in the trade press and in the company's house organ—*The Pittsburgh-Empire Water Journal*. The contest closes on August 31, 1946 and the winners will be posted at the fall water works conventions.

SPARLING COMPOUND METERS

for all main-lines

6-inch to 36-inch



Accurate Over Flow Ranges
As Wide As 1 to 125

COMPOUND meters are now available for all main-lines, flanged or bell and spigot, from 6-inch to 36-inch!

Note the valve which begins to open, bypassing the small meter, when the flow reaches the minimum rate of the larger meter. Pressure loss is less than 2 pounds per square inch.

Only one totalizer—no sharp cutover point!

For sizes, prices and flow-ranges, consult Bulletin 308, free upon request.

R. W. SPARLING

Manufacturer of Water Measuring Equipment

LOS ANGELES 54...Box 3277 Terminal Annex
CHICAGO 16 .....3104 South Michigan Ave.
622 Broadway.....CINCINNATI 2
101 Park Avenue.....NEW YORK 17
BOSTON 8.....6 Beacon Street

It's a family matter!
Yau can bring the widest variety of problems about fluids-moving to Fairbanks-Morse—and keep them in the family! Here's a single source—world-known and pump-wise—of proved pumping equipment, including the largest to the smallest centrifugals, vertical turbines and a broad line of special application types.
WHY NOT place your pumping difficulties in the hands of recognized experts—men who have the broadest line, unlimited manufacturing facilities and a 116-year-old background of scientific research to offer you? See your Fairbanks-Morse dealer or call our local branch office now.
SILENT MEMBER—An added advantage is the line of electric motors designed and built by Fairbanks-Morse—for use on Fairbanks-Morse pumps. They cut your pump selection job in half—give you a pump manufacturer ready to take all the responsibility in selecting your pump and the power to operate it!
OUT OF THE HOLE—Fairbanks-Morse and Pomona deep-well turbine pumps have long been at home in bringing water out of the hole at rock-bottom cost—on farms, factories and wherever vertical turbines are used.
FAIRBANKS-MORSE
A name worth remembering
DIESEL LOCOMOTIVES · DIESEL ENGINES · MAGNETOS · GENERATORS · MOTORS · PUMPS
SCALES · STOKERS · RAILROAD MOTOR CARS and STANDPIPES · FARM EQUIPMENT

Differential Flow Indicator

The Flo-Gage, Builders-Providence's new rate of flow indicator for water, steam, and air.

A new flow indicator called the Flo-Gage has just been announced by Builders Providence, Inc., (Division of Builders Iron Foundry) 18 Codding St., Providence, R. I., to promote the utilization of liquids and/or gases consumed, particularly by eliminating wasteful excesses of flow.

This midget differential meter indicates rate of flow of liquids and gases through lines containing orifices, venturi tubes, and insert nozzles as differential producers, and also indicates liquid level and pressure differences.

The Flo-Gage can be used to assure an adequate supply and economical consumption of steam or air in agitating the contents in vats, tanks, dryers, kilns or ovens; of water in backwashing water filters and softeners; of cooling water for condensers, tanks, process equipment or machines; of cooling oil for electrical equipment; of oil and gas in absorption plants; of fuel gas or fuel oil to burners; of dry or liquid chemicals fed to a main flow by feeders.

It requires very little space, is easy to install, and requires no mercury or auxiliary power. The gage has no stuffing box and can be furnished to measure gallons per minute, cubic feet per hour, and will indicate rate of flow within 2 percent of full scale. The gage mechanism is enclosed in a heavy semi-steel chamber having a thick prestressed glass window designed for an operating pressure of 500 psi.

Falls Kill More People Than Autos Do

About 3,400 people are killed annually in accidents in public buildings, according to the 1944 Edition of *Accident Facts*. To forestall accidents on stairs and ramps Wooster Products, Inc., Wooster, Ohio, has introduced two types of safety treads to meet the requirements in various types of buildings. Wooster abrasive cast treads are now made in four different cast metals, iron, aluminum, bronze, nickel, in plain, cross-hatch, or fluted patterns. Wooster safe groove treads are made of steel, yellow brass, or white alloy bases with lead or abrasive grit fillers.

A special formula of impregnating grits on the surface of the tread and extending the cross-hatch design to the edge permits the abrasive cast treads to reduce accidents. Both types are readily applied on all worn-out stairs, floor areas, and walkways and in new buildings. These units can be installed on wood, concrete, steel, or sheet pan concrete bases. Safe groove treads are suitable for wood and structural steel stairs and abrasive cast treads for concrete and structural steel stairs.

Pittsburgh-Des Moines Engineer Dies

W. H. Metcalf, contracting engineer for Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa., died recently on a business trip to Helena, Mont.

Mr. Metcalf, whose home was in Des Moines and who was a graduate of Iowa State College, was widely known throughout Iowa and the middle west for his activities in the water works field. He was a veteran of 24 years of service with the company.

South Bend GUTTER-SNIPE

Pick-up Street Sweeper

MUNICIPAL SUPPLY COMPANY

Manufacturers

Street Sweepers
Street Flushers
Bituminous Distributors

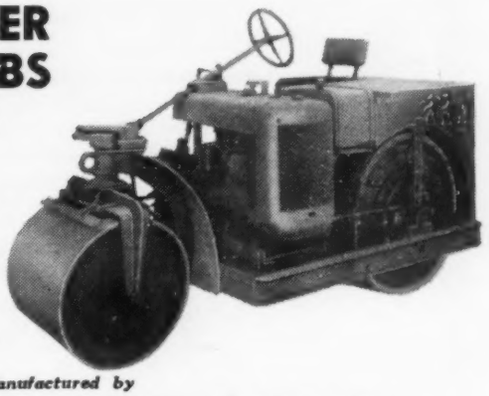
SOUTH BEND 23, INDIANA

EXPORT DEPARTMENT, 44 Whitehall Street, NEW YORK 4, N. Y., U. S. A.

A TOUGH ROLLER FOR TOUGH JOBS

Pierce-Bear 3½-5 Tons, Variable Weights

Engineered for economical operation where the going is tough. Compact, easy to operate. Rear roller gives heavy duty compression. Built-in water tanks for wet rolling. Powered with Allis-Chalmers Industrial Heavy Duty Model "B" gasoline engine. Write for details.



Manufactured by

H. W. LEWIS EQUIPMENT COMPANY

415-431 Hoefgen Ave. SAN ANTONIO 6, TEXAS Phone Garfield 6137 or 8931

You can
LAY WATER PIPE FASTER
when it's easy-to-handle Transite

KEEPING UP with the trenching machine is common practice when the pipe being Installed is Transite!

Crews can unload and install this easy-to-handle, asbestos-cement pipe quickly . . . lay all but the larger sizes without mechanical handling equipment. The Simplex Coupling cuts assembly time . . . assures tight, yet flexible joints.

And in addition, Transite delivers these *long-term* advantages:

No tuberculation. Made of asbestos and cement, its initial high flow rate (C=140) is unaffected by tuberculation. Users never have to contend with excessive pumping costs resulting from this costly form of internal corrosion.

High corrosion resistance—outside, as well as inside and all the way through! Thousands of Transite Pipe installations—many in highly aggressive soils—testify to its exceptional resistance to soil corrosion.

Low maintenance. Transite's tight joints, high uniform strength, great durability and proved corrosion resistance all add up to low maintenance. Over the years, Transite Pipe has established an enviable record for economy in water distribution and supply lines throughout the country.

For complete information, write for brochure TR-11A. Johns-Manville, Box 290, New York 16, New York.

JOHNS-MANVILLE JM PRODUCTS

Johns-Manville
TRANSITE PRESSURE PIPE
An Asbestos Product

A New Weed Killer

Weed elimination in the city is being highlighted in the sales promotion for Dr. Salsbury's selective Weed-Kill. This product was placed on the market just recently. It is a 2,4-D type of herbicide, developed by Dr. Salsbury's Farm Chemical Division to eradicate broad-leaved weeds selectively.

"Weed-Kill destroys most noxious broad-leaf weeds right to the root tips," says Dr. J. E. Salsbury, "and it kills selectively—without injury to grass. Weed-Kill is effective, easy to use, and economical. One gallon, diluted, covers 11/5 acres."

A comprehensive promotional campaign is now in action pointing out the importance of Weed-Kill as an efficient broad-leaved weed eradicator for parks, playgrounds, around bodies of water, and other special uses.

For additional information on Weed-Kill write Dr. Salsbury's Laboratories, Charles City, Iowa.

Nordberg Makes Appointments

F. H. Kilberry has been elected executive vice-president and director of the Nordberg Manufacturing Co., Milwaukee, Wis., according to an announcement by Robert E. Friend, president. Mr. Kilberry will fill the vacancy created by the resignation of C. E. Stryker who has been associated with the company since 1940 as vice-president and assistant to the president.

F. H. Kilberry

Mr. Kilberry has been identified with capital goods industries since 1920. In 1928 he became associated with Atlas Imperial Diesel Engine Co., Oakland, Calif. He was appointed assistant to the president and a director of that company in 1929; in 1930 was appointed general manager; in 1932 was elected vice-president and general manager; and in 1938 was elected president. Under his direction both international and domestic activities were increased.

Mr. Kilberry resigned from the presidency of Atlas Diesel in May 1945 and has since been associated with Nordberg Manufacturing on a special development project.

Nordberg also announces the appointment of John G. Earle as special representative of its Heavy Machinery Division. His work will be largely devoted to diesel engines with which he has had wide experience. Before this appointment he was head of the diesel engine section of the U. S. Maritime Commission. His headquarters will be in the New York office at 60 E. 42nd St.

Why it pays to include Cyclone Fence in your original plans

SINCE most municipal property "takes a beating," you'll find Cyclone Chain Link Fence the surest way to get lasting protection for both the property and the public. And when you put Cyclone in your plans right at the start, you make sure that the fencing will be an integral part of the entire design.

Cyclone Fence is sturdy. It stays taut and true through many years of service. And there's a type to fit every need, from public utilities to parks, playgrounds and pools.

Our factory-trained engineers know the best types of fence for the job, and how to get the most protection from the least footage. They are available to assist you with plans and estimates, and there is no obligation for their service.

In any event, you will find it helpful to have our free reference manual on U·S·S Cyclone Fence, Gates, and other property safeguards. Just fill in the coupon below.

Send for FREE 32-Page Book. Profusely illustrated. A reference manual full of facts and specifications. Complete information on different types of fence, gates, athletic field equipment, and other property safeguards.

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(AMERICAN STEEL & WIRE COMPANY)
Waukegan, Ill. · *Branches in Principal Cities*
United States Steel Export Company, New York

CYCLONE FENCE DIVISION · American Steel & Wire Co.
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CYCLONE FENCE
UNITED STATES STEEL

Cyclone Fence
Waukegan, Ill. DEPT. B46
Please send me, free of charge, your 32-page book on Fence.
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Address.....
City..... State.....
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UNITED STATES STEEL

ONE METHOD

ISN'T THIS THE PRACTICAL ANSWER TO *Narrow Roads?*

Are any of the roads in your locality too narrow for safety under today's heavier, faster-moving traffic?

It's a simple matter to widen them with Tarvia* road tar or Tarvia-lithic.* Methods are quick and inexpensive. Combinations of Tarvia and aggregate are adaptable to any kind of road, any condition of shoulder areas.

Widening lengthens the life of the road, increases traffic capacity, eliminates hazardous drops between pavement and unfinished shoulder.

Thriving communities have a way of outgrowing their roads.

Why not check yours? The Tarvia field man will be glad to work with you and specify proper shoulder foundations and wearing surfaces.

THE RESULT

THE BARRETT DIVISION
ALLIED CHEMICAL & DYE CORPORATION
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Barrett Tarvia*
*Reg. U.S. Pat. Off.

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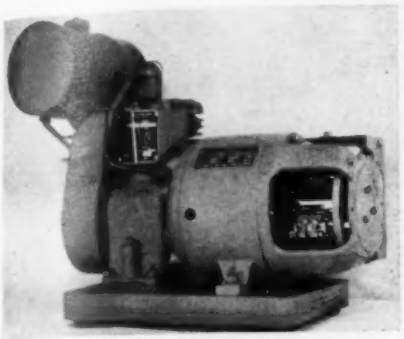
In Canada: The Barrett Company, Ltd., Montreal, Toronto, Winnipeg, Vancouver

ONE OF AMERICA'S GREAT BASIC BUSINESSES

Battery Charger



Kato's new battery charging engine generator set.

The Kato Engineering Co., Mankato, Minn., has recently begun making deliveries on a new model battery charging engine generator set using a Briggs and Stratton model NP engine. This generator is bolted to the side of the engine crankcase; the drive end of armature is piloted onto engine crankshaft; and greased sealed ball bearings carry the outer end of the armature.

On 6 volts this unit will charge a maximum of about 80 amperes. The commutator is of ample length to permit extra large dual brushes. There are four sets of brushes with two all-brass brush holders on each stud. Extra heavy conductors and large terminals permit handling the large volume of current with low voltage drop. Each set is provided with starting switch, ammeter, and reverse current relay. Commutator and brushes are easily accessible by removing spun metal covering. This charger is also available for 12 and 32 volts.

Gardner-Denver Pumps Are Everywhere

Gardner-Denver centrifugal pumps, air compressors, boiler feed pumps, and similar equipment serving municipalities in various unassuming but nevertheless important roles have a host of companions from the same Quincy, Ill., factory performing in many cases dramatic and colorful tasks in every corner of the earth.

The gold fields of South Africa, which have some of the deepest mines in the world, are explored by Gardner-Denver drills. In Bolivia, Gardner-Denver compressors operate 24 hours a day at elevations of 14,000 feet. At Great Bear Lake, Canada, twenty miles south of the Arctic Circle, Gardner-Denver compressors, drills, forges, and pumps serve in strategic mining operations. A Gardner-Denver water-cooled compressor gives constant service 81° north of Spitzenbergen, 600 miles from the North Pole—probably as far north as any compressor operates. The most northerly petroleum development, Point Barrow, Alaska, used Gardner-Denver pumps, transporting them to the drilling sites in Sludges.

Northern Rhodesia, 12° south of the equator, has some of the world's largest copper mines equipped with drills and pumps carrying the Gardner-Denver trademark. Several years ago the legislature of Nova Scotia presented this company with an inscribed parchment in appreciation of the vital part that this equipment played in the rescue of miners entombed by a cave-in.

Gardner-Denver equipment has been used in drilling the majority of the world's deepest oil wells, including the deepest up to now, a California well 16,246 feet deep. A battery of four oil line pumps has been in continuous service since October 1937 with a total of over 207,000 hours. During that time they have pumped over 77,800,000 barrels.

New Valve Plant for Durabla Mfg. Co.

The Durabla Mfg. Co., 114 Liberty St., New York, N. Y., maker of valve units for reciprocating pumps, diesel engines, and compressors and manufacturer of sheet packing and gaskets, has moved its valve plant from its former location in Berwyn, Pa., to a new building at Wayne, Pa.

The building includes a production office; facilities for the company's program of development work in valve design and improved production methods; and is conveniently located for prompt shipment of its products.

On the road for better drinking water

To demonstrate the Ozone process and to investigate treatment problems on the spot, we now have available a mobile laboratory and treatment unit, completely self-contained and mounted in a trailer.

The mobile unit, manned by qualified technicians, is equipped with treatment facilities including two miniature filtration plants, each of one gallon per minute capacity, designed to operate in parallel. Each plant has pumps, mechanical flocculator, settling basin, filter, chemical feeders, etc., so that conventional purification treatment can be applied to water from any source. In addition, facilities are available for generating and applying Ozone to water being treated in either one of these plants. It is thus possible to approximate closely any existing or proposed treatment process and to compare results obtained by use of the Ozone process.

A suitable questionnaire, seeking the basic information needed for preliminary estimates prior to field testing, will be sent on request to any water works operator wishing to investigate the possibilities of ozonation as a solution to any particular taste, odor, or color problem. These preliminary estimates are furnished entirely without obligation.

OZONE PROCESSES
INCORPORATED
1500 Walnut St. Philadelphia 2

E WELSBACH

A wholly owned subsidiary of Welsbach Engineering and Management Corporation

KARPARK

MAKES IT EASY

• Small wonder that the parker likes the simple trouble-free operation of the KARPARK. It is hardly possible to make a mistake and there is nothing to forget. The large instruction plate clearly tells what coin to use and the time allowed. All that is needed is to slide the coin into the plainly visible slot and the rest is *automatic*. And with no complaints about wasted coins or disputes about forgotten manipulations the KARPARK is also popular with traffic officers. Easy use and easy enforcement means constant use and satisfying revenue. Simple Operation is an important reason why KARPARK is *the wise choice*. Write for the whole story.

OPERATING INSTRUCTIONS

INSERT COIN
That's All

KARPARK *Automatics*

KARPARK CORPORATION, CINCINNATI 6, OHIO

KARPARKS ARE MANUFACTURED BY THE HERSCHEDE HALL CLOCK CO.

CARRYHAUL

Trade Mark Registered

FOR TRAILING EQUIPMENT 'CROSS TOWN OR 'CROSS-COUNTRY..WITH ECONOMY

There's a proper size of safe, easy-loading MARTIN TRAILER to hustle light equipment 'cross town —or to highball a giant D8-Dozer 'cross-country—with economy.

Your "CATERPILLAR" Dealer is your MARTIN Dealer. See him for your trailer needs.

Write for Booklet
MANY MARTIN MODELS
5 to 20-Ton Capacity

MARTIN MACHINE COMPANY
Kewanee, Illinois

FOR STOPPING LEAKS IN PIPE LINES...

Emergency Pipe Clamp—the universal repair clamp the world over, for nearly half a century! Easy to apply. Saves cost of new pipe—eliminates job of tearing out old and putting in new.

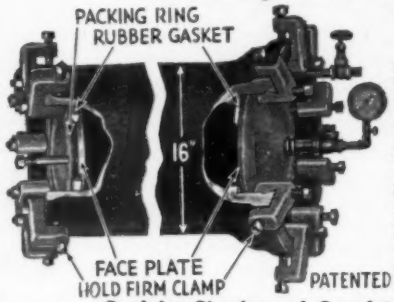
M. B. SKINNER CO.
SOUTH BEND 21, INDIANA

SKINNER-SEAL EMERGENCY PIPE CLAMPS

"HOLD FIRM"

A NEW TEST PLUG

For Testing Mains Conveying



WATER GAS OIL AIR

For testing cast iron, steel, transite, soil and concrete pipe lines, without the necessity of valves; test pipe as you lay them; eliminate open trench and hazards; special for testing reclaimed pipe, valves and fittings. Installed by any unskilled laborer; withstands 300 lbs. hydrostatic pressure, light in weight; same clamps fit many sizes of pipe. Made in all sizes. Used by the City of Chicago, contractors and municipalities.

Send for Circular and Complete Information

TEST PLUG MFG. CO. (not Inc.) SKOKIE, ILL.

Four Wheel Drive Co. Recapitalizes

Aerial view of the Clintonville factory of the Four Wheel Drive Co. More than a million and a half dollars worth of additional production facilities were added to the company during the war.

The Four Wheel Drive Auto Co., Clintonville, Wis., has announced a recapitalization program beginning with the sale of 14,233 new shares of stock and allotment of 100,000 shares, according to Walter A. Olen, president. Capitalization, after distribution of these two blocks of stock, will be 300,000 shares with a par value of ten dollars a share.

Walter A. Olen

The company will have a capital surplus of over $175,000 and an earned surplus of over $2,000,000. The company has added a large number of dealers since the close of the war and now has a backlog of commercial business amounting to over $6,000,000.

There were approximately 1,200 registered stockholders in the company as of February 11th, the date of issue of the stock purchase warrants.

Mr. Olen has served as president of the company since its organization in 1910 and as general manager until last year, when he was succeeded in that position by his son, Robert A. Olen.

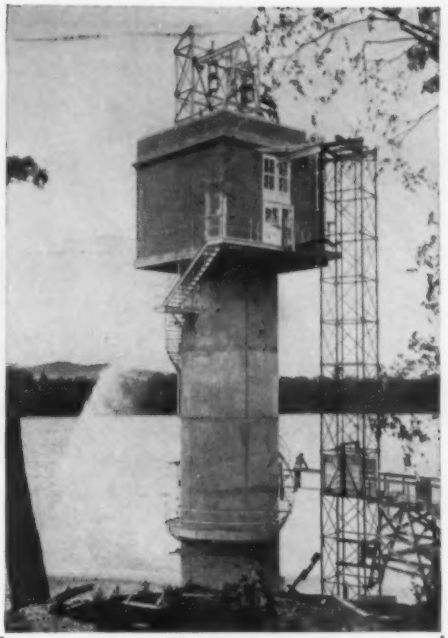
Kwik-Mix Introduces New Redesigned Mixers

A new 11-S Kwik-Mix Dandie concrete mixer has just been announced by the Kwik-Mix Co., Port Washington, Wis., completing the entirely redesigned line of Kwik-Mix Dandie Mixers which also includes new 6-S and 16-S sizes.

The new model follows the general design of the previously announced mixers. Tilted flow line discharge chute, selective skip shaker, and the Kwik-Mix remixing drum are included. It has a capacity of 11 cubic feet of mixed concrete plus 10 percent and complies with A.G.C. specifications. The machine will be furnished either on four wheels with side or end discharge, or on two wheels with end discharge.

Ford, Bacon & Davis Reopen Western Office

Ford, Bacon & Davis, Inc., engineers, 39 Broadway, New York, N. Y., announced recently the reopening of its western office. This is located at 606 South Hill St., Los Angeles 14, Calif.; Page Golsan, vice-president, is in charge.



4,000,000 GALLONS PER DAY from a typical Ranney Collector located on the Bank of the Ohio River with pump house above Flood Level.

RANNEY METHOD WATER SUPPLIES INC.

HEYBURN BLDG., LOUISVILLE, KY.

WATER SUPPLY ENGINEERS & CONTRACTORS

ROADMASTER Street Sweeper WIRE

High Scleroscope Rating
Uniform temper.

Specially processed for high fatigue — against breakage. Long wearing. Conveniently cut and delivered in 100 and 200 lb. boxes. Prompt shipment from stock of all standard sizes.

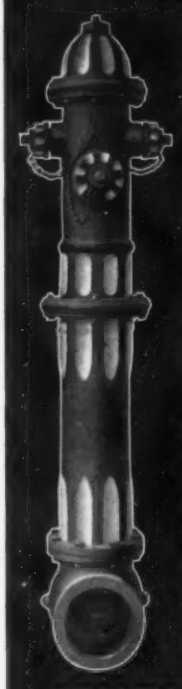
This gutter broom wire will prove an economy in your service.

"MORE MILES PER BRUSH"

JOHNSON
Steel & Wire Co., Inc.
Worcester 1, Massachusetts

New York Akron Chicago Detroit
Los Angeles Toronto

BE PREPARED FOR THOSE FIRES



Here is a fire hydrant that goes into action FAST! Designed to deliver plenty of water in a hurry. Helps cut fire losses and saves your city money. For the full story on MUELLER-COLUMBIAN Fire Hydrants write for our latest four-page folder. All the facts — condensed for quick reading.

MUELLER CO.
CHATTANOOGA 1, TENN.
DECATUR, ILL. LOS ANGELES, CALIF.

Saves

• TIME
• LABOR
• MONEY

See the lead and redwood wedges in the bell of this pipe. They're placed there at the McWane foundry.

No lost motion on the job. No joints to make. All you do is "socket the spigot and calk." Then this 100-year PRECALKED pipe is in service . . . TIGHT . . . leak proof. Save time! labor! money! with McWane PRECALKED pipe.

McWANE CAST IRON PIPE CO.
BIRMINGHAM 2, ALA.

McWane PRECALKED Pipe

Cast Iron Pipe

PLAIN CAST OR SPUN CENTRIFUGAL

Cast Iron Pipe and Special Castings, Bell and Spigot, Flange, Flexible Joint, Culvert, Milled and Plain End Tubes, Cylinders, Flanged and Bell and Spigot Fittings, High Pressure Fire Service Pipe, Warren Short Body Specials, Threaded End Pipe.

Size 2 to 84-inch

Pipe manufactured in accordance with standard specifications adopted and approved by water works associations and engineers.

Warren Foundry & Pipe Corp.
11 Broadway, New York City

Warren Pipe Co. of Massachusetts
75 Federal Street, Boston, Mass.

DAVEY AUTO-AIR GETS MOBILITY, ARMY STYLE— INTO COMPRESSED-AIR JOBS

This war has taught America mobility . . . the value of self-contained units that can get to the job, do it, then get quickly on to another.

On short compressed-air jobs, where maximum mobility means greatest efficiency, the Davey truck-mounted AUTO-AIR has no competition. Powered by the truck engine through the Davey Heavy-Duty Truck Power Take-Off and mounted behind the cab, using less than one-third of the truck space, the Davey Auto-Air leaves plenty of room for men, tools, and materials.

MOBILITY — ECONOMY — VERSATILITY

A choice of three units—compressor, compressor-welder, or compressor-welder-lighting generator—offers ability to do almost any job. Compressors available in 60, 105, 160, 210 and 315 cu. ft. capacities . . . welding and lighting generators to suit your requirements.

For full information on the complete Davey Line of Compressors, Truck Power Take-Offs, Pneumatic Saws and additional pneumatic engineering data, write today for free catalog E-172.

DAVEY Compressor Co.
KENT • OHIO

DEALERS IN PRINCIPAL CITIES

KWIK-MIX BITUMINOUS NON-TILTING MIXER

● An End Discharge mixer for applying cold or hot laid bituminous mixtures to new surfaces for re-facing and for maintenance. The wide quick acting discharge gate of the non-tilting drum reduces the time between batches. This light weight, portable unit can be quickly spotted and because of the end discharge advantage, the mixer can be conveniently pulled away from the discharged material. Equipment includes two burners which can be easily removed for controlling temperatures.

•

Write for Catalog BAC

•

KWIK-MIX COMPANY
KOEHRING SUBSIDIARY
PORT WASHINGTON • WISCONSIN

New Vice-Presidents for Mack Truck

Frederick W. Beardslee has been made vice-president in charge of the motor fire apparatus division and John H. Middlekamp, vice-president in charge of the general bus department at Mack - International Motor Truck Corp., Empire State Bldg., New York, N.Y., according to C. T. Ruhf, president.

F. W. Beardslee

Mr. Beardslee joined Mack Motor Truck Co. in 1919 and served as manager of the Bridgeport branch and, since 1940, as manager of the fire apparatus division. His headquarters will be in the Long Island City plant.

Mr. Middlekamp came to Mack in January 1945 after service as a lieutenant colonel in charge of truck production in the Ordnance Department. Later he served as director of the automotive division of the War Production Board. Manager of Mack's government department at first, he was made manager of the general bus department in April. His headquarters will be in the Empire State Building.

Also announced was the appointment of F. E. James as assistant to the chief engineer of the corporation. He will be in charge of Mack's fire apparatus engineering and will make his headquarters at the Allentown, Pa., plant.

F. E. James

After some experience in aeronautical engineering and flying, Mr. James joined the Mack organization in 1926 as a draftsman and served successively as squad leader, bus and truck development engineer, chief draftsman for fire apparatus engineering, and fire apparatus engineer.

Autocar Appoints Albany Manager

C. E. Lopez has been appointed district manager in charge of the Albany, N. Y., area for The Autocar Co., Ardmore, Pa. For 15 years he has been manager of the Mack Factory Branch in Rochester, N. Y.

Mr. Lopez succeeds L. E. Harmon, who retired because of ill health.

3500 gallon capacity Heil streamlined flusher tank

HEIL STREET FLUSHERS help you establish a record for Cleaner Streets

Heil Street Flushers are built by the same experienced organization that has led the field in fabricating transportation tanks for all types of service since 1901.

You can recommend these Street Flushers because they have been carefully engineered and ruggedly built for dependable service and economical operation. The penetrating force of the spray cleans pavements thoroughly, and the effective area can be controlled to widths of 16 to 42 feet by the use of one, two, or three brass flushing nozzles. You save water — you save power. Write for descriptive bulletin TT639. It tells you about the outstanding features of Heil Street Flushers.

800 gallon Heil Street Flusher

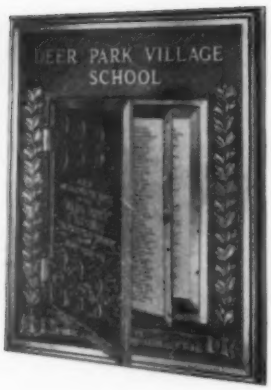
1800 gallon Heil Street Flusher

T-139

ARMY NAVY

THE HEIL CO.

GENERAL OFFICES • MILWAUKEE 1, WISCONSIN



NEW

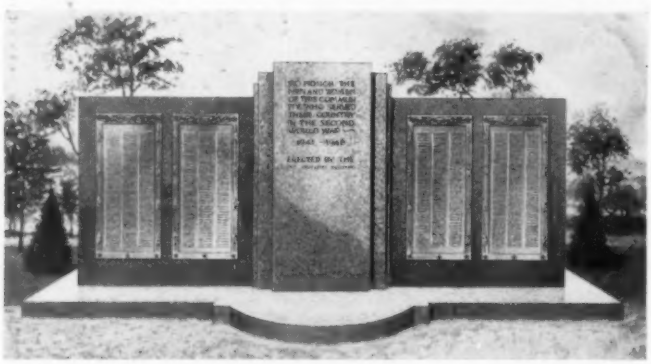
"OPENING DOOR" Roll of Honor

Bronze door partly open. Shows swinging frames which form the pages of this permanent all bronze book of remembrance.

New and distinctive—Metalcrafts' "Opening Door" Roll of Honor is the most practical and economical answer to the memorial problem. It is all bronze, therefore everlasting. Easily installed in inside or outside walls. Its swinging frames open like the leaves of a book and accommodate anywhere from a few to many hundreds of names. A most desirable feature is that printed or typed lists can be temporarily used in the swinging frames. When lists are completed and correct, the names are permanently engraved on sheets of bronze. The "Opening Door" Roll of Honor is an exclusive Metalcrafts' design. Patent applied for.

With the heavy bronze door closed every detail is symbolic of the perfect tribute.

MEMORIALS FOR ALL PURPOSES



For more than one hundred years Metalcrafts has been nationally recognized as an outstanding leader in metal fabrication and craftsmanship. This skill and experience is yours to command. We will help you plan and design just the memorial that will mean complete satisfaction to all concerned. Our work encompasses memorials in tribute to thousands, as well as tablets and plaques in memory of one or a few.

Write for bulletin giving complete details of the "Opening Door" Roll of Honor, together with 24 page catalogue showing Metalcrafts' memorial designs for every purpose.

METAL CRAFT

Every Metalcrafts' tablet, plaque and honor roll is guaranteed to be of highest quality materials and workmanship.

CINCINNATI METALCRAFTS, INC.

Dept. AC, 34th & Robertson Cincinnati 9, Ohio

HAND
STORAGE BATTERIES
FOR MUNICIPALITIES

HAND storage batteries are heavy-duty batteries provided with heavy, hand-pasted, tank-formed plates, heavy glass mats, acid and heat resisting micro-porous rubber separators, splash decks and genuine hard rubber containers. Built for use in Police Radio cars, Sanitation trucks, snow plows, sweepers, emergency trucks, ambulances, and fire apparatus.

The Hand Laboratory, Nyack, N. Y.

BUY FOR SERVICE

Get Outdoor Drinking Fountains, Hydrants and Street Washers that operate EVERY day in the year with little attention by sticking the name

MURDOCK

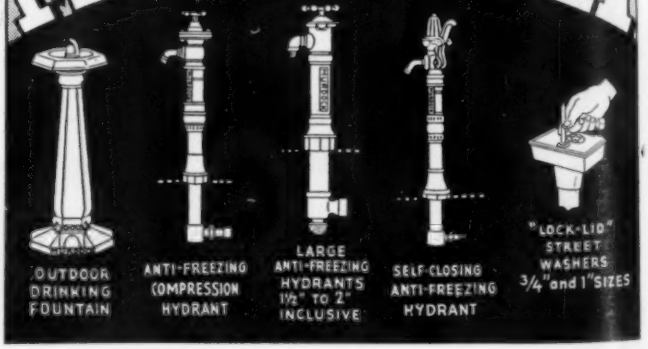
on All Requests for Bids on

OUTDOOR WATER SERVICE DEVICES

"It Pays to Buy MURDOCK"

THE MURDOCK MFG. & SUP. CO.
426 Plum St. Cincinnati 2, Ohio

MURDOCK


OUTDOOR DRINKING FOUNTAIN
ANTI-FREEZING COMPRESSION HYDRANT
LARGE ANTI-FREEZING HYDRANTS 1½" TO 2" INCLUSIVE
SELF-CLOSING ANTI-FREEZING HYDRANT
"LOCK-LID" STREET WASHERS 3/4" and 1" SIZES

Roots-Connersville Elects Officials

The new president of Roots-Connersville Blower Corp., John Avery (left) confers with J. S. Tatman (right) who, after serving as president of the company, has been elevated to Chairman of the Board.

J. S. Tatman has been elected chairman of the board and John Avery, president and general manager of Roots-Connersville Blower Corp., Connersville, Ind., according to a recent announcement.

Mr. Tatman has been with the organization since his graduation from Purdue University in 1902. He is a vice-president of The Compressed Air & Gas Institute.

Mr. Avery, well known for his activities in centrifugal compressor engineering for the last 22 years, was graduated from the U. S. Naval Academy in 1923. He subsequently was connected with General Electric and American Brown Boveri Co. Before becoming president of Roots-Connersville he was manager of the Blower and Compressor Department of Allis-Chalmers Mfg. Co.

Clifford S. Strike Reports on German Reconstruction

Clifford S. Strike, who has been in Germany since July 1945 as Chief of the Building Materials, Construction and Forestry Office of the U. S. Military Government, returned to the United States on February 28 to resume his duties as president of F. H. McGraw & Company, engineers and constructors.

Mr. Strike's report to the War Department disclosed that partly demolished buildings have now been repaired sufficiently to provide temporary housing facilities for approximately 4,000,000 homeless Germans out of a 16,000,000 population in the American zone.

Owing to a general shortage of every type of building material, a six weeks' survey was undertaken by Mr. Strike and his staff to determine: (1) census of population needing winter housing; (2) number of houses that can be repaired, and (3) amount and kind of salvaged materials which can be utilized in rebuilding. The greatest shortages were found to be in lumber, glass, and roofing.

"Homeless people were found living in caves, barns, railroad cars, or tramping the roads," Mr. Strike said, "and our first problem was to prevent epidemics. The only available heating equipment was wood-burning stoves. Drinking water was bad; the Germans drank it, but Americans did not. The Public Utility Branch supervised the laying of pipes, and water was treated with a chlorine tablet called Halozone.

"We used more than 2,500,000 German workmen in the rehabilitation program and the Germans are now planning to continue the same type of home building."

Mr. Strike stated that the outlook for complete rehabilitation of Germany was far from encouraging and that it might take twenty years to rebuild industries, provide housing, and restore transportation facilities.

Davey Announces English Distributors

J. T. Johnston and Co., Ltd., Berkshire, England, will distribute the Davey line of air compressors in England, Scotland, Wales, Northern Ireland, and the Irish Free State according to Paul H. Davey, President of Davey Compressor Co., Kent, Ohio.

Col. D. J. Ringwood, one of the owners and chairman of the Johnston concern, and Major M. M. Snow, were formerly officers of the British army staff on duty in the U. S. capital from 1941 until recently. Col. Ringwood joined the Johnston organization in 1934, handling a general line of British construction machinery.

American Association of State Highway Officials

POLICIES AVAILABLE

You may now obtain the full set of Seven Association Policies at Group price of $2.25.

Highway Classification	$.50	Set of 7 at $2.25
Rotary Intersections	.50	
Sight Distances for Highways	.50	
Intersections at Grade	.50	
Highway Types (Geometric)	.50	
Criteria for Marking and Signing No-Passing Zones on Two- and Three-Lane Roads	.50	
Grade Separations for Intersecting Highways	1.00	

These are the policies referred to in the recently adopted Association standards for secondary and feeder roads, and roads on the national system of interstate highways.

Order Direct from

AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS

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APCO-V-APCO PRIMERS

AUTOMATIC
POWER
OR
TANK PRIMERS

AIR RELEASE VALVES

FOR
FILTER PIPE LINES
DISTRIBUTION LINES
AND OTHER USES
17 TYPES

VALVE AND PRIMER CORPORATION

Room 366—111 W. Washington St.
CHICAGO, ILL.

TYPE X SINGLE LID Meter Box COVERS

These modern covers for water meter settings have the Lifter Worm Lock plus a hinge-effect feature which permits the lid to be leaned back for meter reading, or lifted off if desired. Made in several sizes and depths.

Write for catalog now.

FORD Meter Box Co.
WABASH, INDIANA

KEEP 'EM MOVING

Motorists and merchants approve business-like signs that direct traffic to the right places. Throughout the city, Miro-Flex signs simplify and control traffic flow and make enforcement easier.
The high readability and long life of Miro-Flex signs meet the approval of traffic officials all over the nation. Embossed signs are deeply drawn and of baked enamel. Reflectorized areas are Lucite, the brightest and most durable medium ever used. Miro-Flex produces a complete line of approved traffic signs. Write for catalog.

MANUFACTURED BY

MIRO-FLEX COMPANY

1824 EAST SECOND STREET · WICHITA, KANSAS

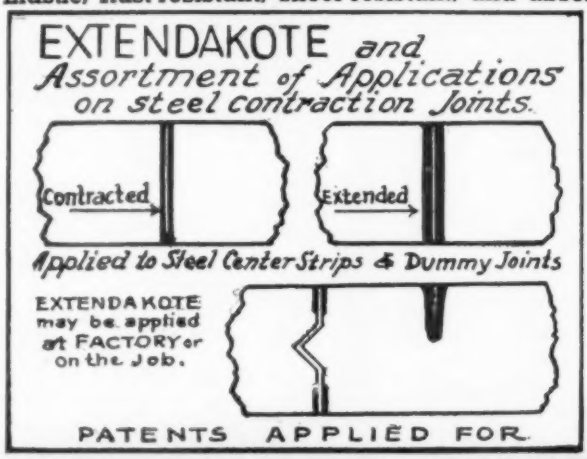
An Elastic Waterlight Joint-Sealer

Announcing **EXTENDAKOTE**

Extendable and Maintains Bond at 0°F.

AGAIN WE INCREASE THE SCOPE of A WATERPROOF JOINT

SERVICISED: Presents "EXTENDAKOTE"—to Solve many waterproofing problems. It is Self-Sealing, Elastic, Rust-resistant, sheer-resistant, and absorbs Vibration. It is Non-Extruding in summer, does not crack in Winter. Maintains Bond in Sub-Zero weather.



EXTENDAKOTE APPLICATIONS

EXTENDAKOTE as the name implies is an Elastic Coating for Steel Transverse and Contraction Joints, Steel Center Strips, Dummy Joints and Cleavage Lines. Extendakote may be applied at factory or on the Job.
SERVICISED: originators of Extendakote recommend a substantial layer or body for best Efficiency.

WATERPROOFING

Extendakote is a process of hot-pouring or dipping and permanently seals and waterproofs when used in its proper place.

Send Today for Information

AC-4

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SERVICISED PRODUCTS CORP.
6051 WEST 65TH ST. CHICAGO 38, ILL.

SERVICISED PRODUCTS CORP.
6051 West 65th Street Chicago 38, Ill.

Wilson Elected President of Worthington-Gamon

Charles E. Wilson, vice-president of Worthington Pump and Machinery Corporation, Harrison, N. J., has been named president of the Worthington-Gamon Meter Company, of Newark, N. J., a subsidiary engaged in the manufacture of liquid meters. C. A. Packard was appointed vice-president and comptroller. Other officials are C. E. Searle, vice-president, R. R. Anderson, vice-president and treasurer, J. A. Bonnet, secretary. W. C. Flanders, assistant general manager and H. A. Bellows, assistant secretary and treasurer.

Charles E. Wilson

It is interesting to note that Worthington's Charles E. Wilson has in recent years been confused with President Charles E. Wilson of General Motors, and President Charles E. Wilson of General Electric. Full names are Charles Eben Wilson, Worthington, Charles Edward Wilson, General Electric and Charles Erwin Wilson, General Motors.

Galvin Appointed by LaPlant-Choate

E. R. Galvin has been named executive vice-president, general sales manager and a member of the board of directors of LaPlant-Choate Mfg. Co., Inc., Cedar Rapids, Iowa, manufacturer of bulldozers, scrapers, and other earth-moving equipment. Mr. Galvin was formerly president of Tyson Bearing Corp., Massillon, Ohio.

E. R. Galvin

It was also announced that S. L. Myers, who has been vice-president and general sales manager during the last year, will become vice-president and export sales manager; while Jay M. Fetters, former export manager, will become manager of foreign development.

Prior to his association with LaPlant-Choate and Tyson, Mr. Galvin was general sales manager of R. G. LeTourneau, Inc., Peoria, Ill. He also served as general sales manager of Caterpillar Tractor Co. from 1927 to 1938. Before that he served two years as general sales manager of the Cleveland Tractor Co., and seven years as director of sales for the smokeless powder division of E. I. DuPont de Nemours & Co., Wilmington, Del.

Dean Edwards Joins DeLeuw and Kelcey

Dean G. Edwards is now associated with Charles E. DeLeuw and Guy Kelcey, consulting engineers in New York; and with DeLeuw, Cather & Co., engineers of Chicago, according to a recent announcement. He will be located at 120 Broadway, New York 5, N. Y.

Mr. Edwards has been identified with the engineering profession and the construction industry in New York City for many years. A graduate of Harvard, he worked with the city on the construction of the original subway and later on the Catskill Aqueduct. Heading his own contracting firm, he supervised construction of many projects in and near New York City during a period of fifteen years. He was Chief Engineer of CWA for the city during the life of the agency; served in Washington, and later was consultant for the Citizens' Budget Commission. He served as consulting engineer and chief engineer of the Borough of Manhattan.

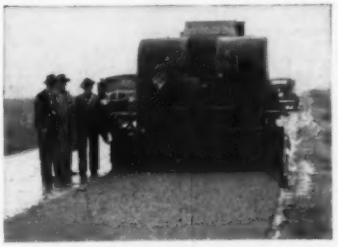
H&B Moto-Paver

THE COMPLETE TRAVELING MIXER AND PAVER

Does the Complete Mixing and Paving Job

● The Moto-Paver mixes, spreads and lays any type of mixed-in-place bituminous material to any road width, thickness and crown condition. No separate loader, spreader or other paving equipment is required—no trailer to haul the machine from one job to another.

The Moto-Paver does *the complete mixing and paving job,* and travels from one job to another under its own power. Paving speed is from 4 to 50 feet per minute, road speed up to 18 miles per hour. Mixing capacity 100 to 120 tons per hour. Bulletin MP-46, giving complete information and specifications, will be sent on request.



Resurfacing Michigan Road with the Moto-Paver

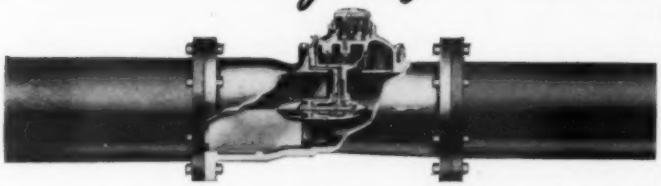
HETHERINGTON & BERNER INC.
719 KENTUCKY AVE. • INDIANAPOLIS 7, IND.

Also Builders of Portable and Stationary Batch Mix Plants of All Types and Capacities

H&B Hetherington & Berner

RUGGED – DEPENDABLE

BUILDERS *Propeloflo* METER

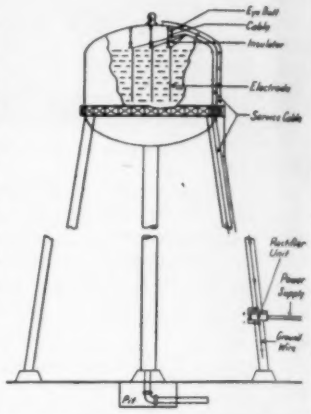


Guard against water wastel Install Builders Propeloflo Meter on all main lines and *know* exactly how much water is being delivered. Simple, rugged construction means easy maintenance and long life. You can depend on Builders Propeloflo Meter: streamline Venturi design gives exceptional accuracy with low loss of head through a wide range of flow. Now available for lines 2" to 36". For Bulletin 350A, address Builders-Providence, Inc. (Division of Builders Iron Foundry) 18 Codding Street, Providence 1, R. I.

BUILDERS BUILDERS PROVIDENCE Instruments

Permanent PROTECTION *against under-water* RUST

The Electro Rust-Proofing Cathodic System simply stops the electrolytic action which causes rust on submerged metal. It therefore stops rusting—instantly, permanently, economically. Kills the greatest cause of deterioration. Eliminates forever the costliest item of maintenance—draining, scraping, painting. Usually installed for about the cost of one paint job; operates year in and year out for a small fraction of ordinary painting cost. Used by thousands of municipalities and industries in water tanks, standpipes, flocculators, deep wells, and other water-handling equipment. Engineered to each installation. Advocated by independent authorities. Write for details, proof of performance, list of users.



ELECTRO RUST-PROOFING *Corporation*

DAYTON 10, OHIO, U. S. A.

The "Quinn Standard"

FOR CONCRETE PIPE

The Quinn Standard is known as the best the world over, wherever concrete pipe is produced and used. Backed by over 30 years' service in the hands of hundreds of Quinn-educated contractors, municipal departments and pipe manufacturers who know from experience that **Quinn pipe forms** and **Quinn mixing formulas** combine to produce the finest concrete pipe at lowest cost.

Quinn Heavy Duty Pipe Forms

For making pipe by hand methods by either the wet or semi-dry processes. Built to give more years of service—sizes for any diameter pipe from 12 to 84 inches—tongue and groove or bell end pipe—any length.

WRITE TODAY

Complete information, prices and estimates sent on request. Also manufacturers of Quinn Concrete Pipe Machines.

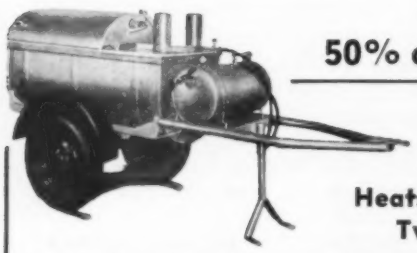
QUINN WIRE & IRON WORKS 1623 12th ST. BOONE, IA.

SNOW LOADER for sale

Sealed bids will be received by the undersigned up to and including July 31, 1946, for one (1) Barber-Greene Type F Snow Loader.

Seller reserves the right to reject any and all bids.

A. R. Casteline
Lehigh Valley Transit Company
12th and Cumberland Streets
Allentown, Pa.



Save 50% on Time & Fuel

The Aeroil HEET-MASTER

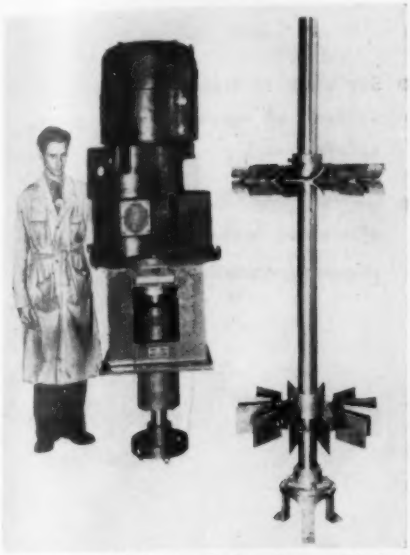
Heats Tar & Asphalt Twice As Fast

The "HEET MASTER" will produce as much "hot stuff" as two ordinary type oil-burning kettles of the same capacity. Now obtainable on pneumatics. (Also mud guards at slight extra cost.) Send for FREE Bulletin No. 300LP. Oil-burning Lead and Pipe Compound Melting Furnaces, Bulletin No. 232AC. Portable Oil Burner & Torch Outfits, Bulletin 174AC. Asphalt Paving Tools & Accessories, Bulletin 501AC. Asphalt Paving Tool Heaters and Asphalt Pavement Heaters, Leaflet 171AC.

Aeroil Products Co., West New York, N. J.

CHICAGO 16 SAN FRANCISCO 7 DALLAS 1

Mixers for Water or Sewage Treatment



One of the Lightnin flash mixers. Blades are removable and may be replaced when necessary.

The Mixing Equipment Co., Inc., 1075 Garson Avenue, Rochester 9, N. Y., has added to its line of Lightnin flash mixers a new air-driven portable unit. This model is light, has a wide range of speeds, is non-sparking, and it may be equipped from a complete line of accessories including propellers, support brackets, and shafts in a variety of metals and alloys to permit use in any liquid.

This company has a wide range of flash mixers for either permanent or portable installation that are fitted with any of a number of types of propeller blades to meet any mixing requirements. Blades are removable and may be readily replaced when necessary. All Lightnin mixers are designed to give instantaneous dispersion of an added chemical.

The company, which has had extensive experience in the difficult field of chemical manufacture, is ready to assist in suggesting the location of pH control apparatus, inlets, and outlets in the design of mixing tanks.

New York Office of Clay Sewer Pipe Assn. Moves

The New York office of the Clay Sewer Pipe Association has been moved to Suite 2606, 26 Court St., Borough Hall District, Brooklyn, N. Y.

Larger quarters were necessitated by the appointment of H. G. Carlson to the field engineering staff. He will be located at this new address with Benjamin Eisner, chief engineer. Before becoming chief engineer for the association Mr. Carlson served with the U. S. Merchant Marine and is a civil engineering graduate of the University of Michigan.

The association is continuing its representation in the eastern part of the country from Indiana east and from Virginia north.

Major Kennoy Opens Engineering Office

Major John S. Kennoy, Corps of Engineers, recently returned to inactive status, has established an engineering office at 635 South Broadway, Lexington, Ky.

J. S. Kennoy

Since graduating from the University of Kentucky in 1926 he has had broad engineering experience on field surveys, the construction of airfields, highways, dams, and power plants, and municipal utilities.

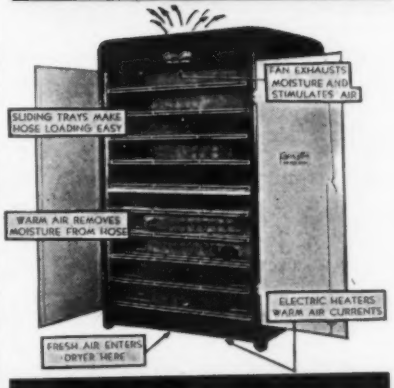
During the last four years Major Kennoy served with the Army Corps of Engineers on the construction of ordnance plants and arsenal buildings, later being assigned to Post Engineer duties.

In this latter work he became familiar with airfield construction and maintenance methods, utilities operation and the sanitary fill method of garbage disposal.

CIRCUL-AIR

FIRE HOSE DRYER

- Is easier to use
- Saves drying time
- Reduces hose stretch
- Prevents mildew and rot
- Improves building design
- Air-conditions as it dries


FAN EXHAUSTS MOISTURE AND STIMULATES AIR
SLIDING TRAYS MAKE HOSE LOADING EASY
WARM AIR REMOVES MOISTURE FROM HOSE
ELECTRIC HEATERS WARM AIR CURRENTS
FRESH AIR ENTERS DRYER HERE

THE CIRCUL-AIR CORPORATION
6339 East Palmer Avenue
DETROIT 11, MICHIGAN

FOR A *Better* JOB

For years and years—since 1856—skilled craftsmanship and precision engineering have gone into the production of the famous McDonald Diamond Line of quality water works goods. And the plumbing trade throughout the nation has found that the satisfaction of a job well done results from the use of this time-tested product. Illustrated is one of the Diamond Lines' many items—Plate E-3061 McDonald Diamond Patent Cap, Inverted Key Curb Stop, Round Way, with Malleable Galvanized Tee Handle. Sizes ½, ⅝, ¾, 1, 1¼, and 2 inches. Write for availabilities and prices.

EST. 1856
McDonald

A. Y. McDONALD MFG. CO.
DUBUQUE, IOWA
BRASS GOODS • PUMPS • OIL EQUIPMENT

SEAGRAVE

Centrifugal

The all-bronze Seagrave Pump is a part of the apparatus and sets deep into the chassis providing a lower center of gravity.

The Seagrave Centrifugal Pump and the Seagrave Motor are on a straight line. This means a straight driving line from motor to pump and produces the maximum of efficiency.

The placement of the Seagrave Pump is another example of Seagrave unexceled construction . . . another reason why it pays to specify Seagrave.

THE SEAGRAVE CORPORATION
Columbus, Ohio

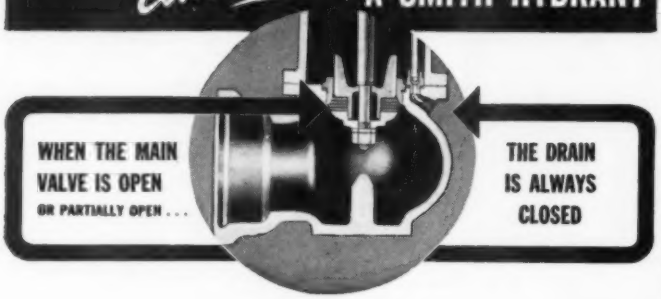
BICKLE-SEAGRAVE, LTD.
Woodstock, Ont.

- Set deep in frame to provide low center of gravity and greater safety.
- On straight line with engine—eliminates wear on universal and prevents vibration.

SEAGRAVE

THE GREATEST NAME IN FIRE APPARATUS

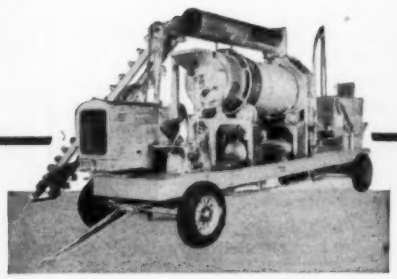
LEAKAGE THRU DRAIN *can never undermine* A SMITH HYDRANT



The Smith Fire Hydrant is so designed that the drain is open only when the main valve is completely closed. Water under pressure cannot pass through the drain in the event that the main valve is improperly closed, partially open or opening.

16

THE A. P. SMITH MFG. CO.
EAST ORANGE NEW JERSEY



PORTABLE ASPHALT PLANTS

Write for Catalog

Elkhart **White Mfg. Co.** Indiana

BACK THEM . . . BUY BONDS

Mark well this button. It is worn by the men and women honorably discharged from the armed services. Though they are now in civilian clothes, let's not forget their service to our country and us. They still rate our every consideration.

Two Companies Joint Owners of Electro Rust-Proofing

Wallace & Tiernan Co., Inc., Newark, N. J., and The Dorr Company of New York recently purchased the interests owned by E. H. Ingle and are now joint owners of the Electro Rust-Proofing Corp., Dayton, Ohio. Mr. Ingle continues as president and general manager; the present organization is retained and plans are being completed for expansion of research and service departments.

E. H. Ingle

The Electro Rust-Proofing Corporation specializes in the furnishing of equipment and engineering services for the cathodic protection of tanks and submerged metal structures in the water works and sewage fields.

Aviation Consultants Form New Firm

John L. Drew and Earl C. Peters recently announced the formation of the firm of Drew and Peters at 29 Garden Rd., Buffalo 21, N. Y.

This new firm is a technical and business consulting organization designed to serve large and small concerns and communities engaged in planning aviation developments. Drew and Peters have set up a research service to assist in this evaluation of the economic, financial, and technical factors involved in aviation planning.

The firm's program includes passenger and cargo traffic studies, analyses of operations and costs for all types of air carriers and operators of small craft.

Mr. Drew, active in aviation for 12 years, was until recently sales research manager for the Airplane Division of the Curtiss-Wright Corporation at St. Louis and Buffalo. Mr. Peters, experienced in several fields of engineering, carried out special engineering assignments for the Curtiss-Wright Airplane Division during a six-year period. Due to that company's decision to halt production of its commercial transports in Buffalo, it became possible for Drew and Peters to assemble the key aviation personnel of the Curtiss business research organization into an independent consulting staff.

More Cities Approve Fiber Pipe

Nine additional municipalities have been added to the list of cities and states which have approved Orangeburg pipe for house-to-sewer connections, according to James R. Connell, vice-president and sales manager of the Fibre Conduit Co., Orangeburg, N. Y.

Indianapolis, Ind., heads the list and the others are Abilene, Texas; Brandenton, Fla.; Colorado Springs, Colo.; Glen Cove, N. Y.; Miami Beach, Fla.; North Arlington, N. J.; Roanoke, Va.; and Rutherford, N. J.

Hundreds of "Swifts" in Production

Stockholders of the Globe Aircraft Corp., Fort Worth 6, Texas, have approved a recapitalization plan making the Fort Worth concern the first manufacturer of private light airplanes to undertake a major post-war public financing program. John Kennedy, president, announced that the estimated $1,275,000 in proceeds from the preferred stock offering will be used to provide $250,000 in additional plant facilities, to retire a $960,000 Reconstruction Finance loan, for working capital, and other expenses of the issue.

The need for small airports is indicated by the fact that Globe Aircraft now has purchase orders in excess of $18,000,000 for its all-metal Swift, two-place monoplanes powered with either 85 or 125 hp engines. Production of this plane will be supplemented by the output of the Texas Engineering and Manufacturing Co. at the Grand Prairie plant formerly operated by North American Aviation Corp.

CALCIUM CHLORIDE CONSOLIDATION

The Right Beginning for Better Roads!

Consolidation of road surfaces is the beginning of road improvement.

Secondary roads that meet requirements at lowest cost, can be built by local labor, of local soil materials, consolidated with calcium chloride.

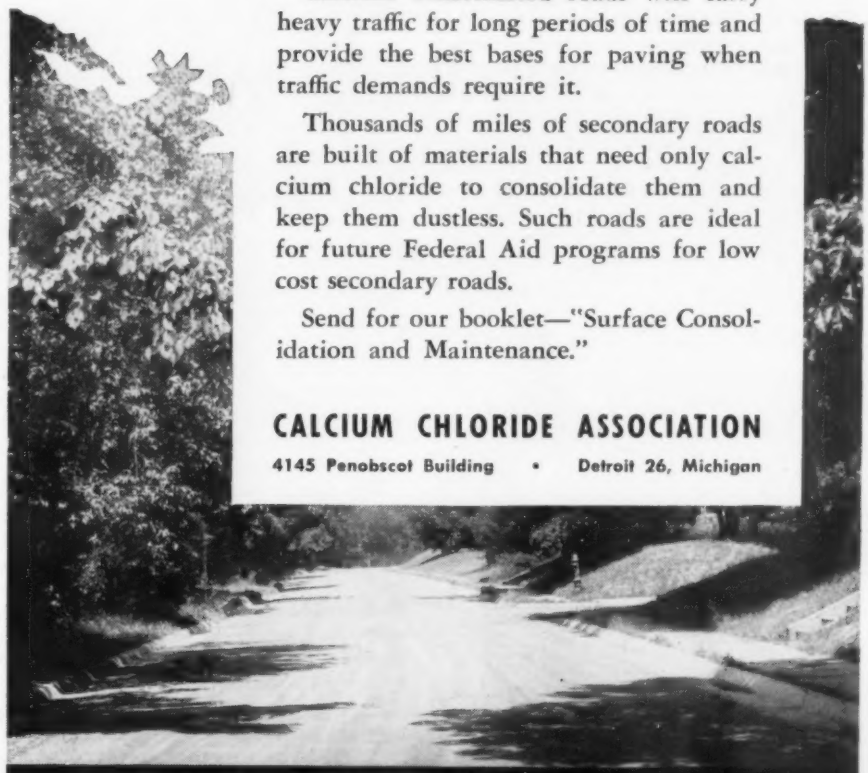
Calcium consolidated roads will carry heavy traffic for long periods of time and provide the best bases for paving when traffic demands require it.

Thousands of miles of secondary roads are built of materials that need only calcium chloride to consolidate them and keep them dustless. Such roads are ideal for future Federal Aid programs for low cost secondary roads.

Send for our booklet—"Surface Consolidation and Maintenance."

CALCIUM CHLORIDE ASSOCIATION

4145 Penobscot Building • Detroit 26, Michigan



Get More Miles of Better Roads—

THE CALCIUM WAY

Waste Receptacles

One of the Bennett Bilt waste receptacles being used.

To provide an economical method of helping to assure cleanliness, Bennett Manufacturing Co., Inc., Alden, N. Y., has introduced a complete new line of Bennett Bilt Waste Receptacles. These are fabricated from heavy gage steel and reinforced by rounded corners for hard, everyday use. All welded construction provides smooth, unobstructed exterior surface.

Two independently hinged doors may be opened simultaneously. Heavy tension springs that keep these doors permanently closed when not in use eliminate the necessity of placing the receptacles on perfectly level floors or stands. Rubber bumpers assure quiet closing of the doors.

Four sturdy legs keep the receptacle off damp floors. The larger sizes of receptacles have full size fabric bags for quick, easy removal of waste. Six graduated sizes are available in olive green or white finish. The largest model is designed and finished specially for outdoor use in parks, on sidewalks, and plant grounds.

The fabric bags can be easily removed from the Bennett waste receptacles when full. Full swing top permits unobstructed removal and replacing of the bag.

RCA's New Line of FM Radio

A complete new line of one-, two-, and three-way FM communication equipment was recently announced by the Radio Corporation of America. The equipment was designed primarily for the use of police departments, fire departments, public utilities, and other agencies authorized to operate on the 30 to 44 megacycle band.

The new equipment features many circuit and design improvements made possible by war time research and development. Not one unit of this equipment, even down to the smallest accessory, is a holdover or minor modification of equipment previously available.

Tests have demonstrated that this equipment provides superior audio quality, a new degree of adjacent selectivity, stability over a wide range of temperature, and greater simplicity of installation, operation, and servicing. Other features include improved safety provisions, compact and rugged construction, and attractive styling.

The new RCA line is complete, consisting of transmitters, receivers, handsets, control units and antennas, designed for station headquarters use and for installation in any mobile unit.

The mobile units are much simpler to install and service than their prewar predecessors, requiring about half the mounting space. These units include FM receivers with either dynamotor or vibrator type power supply and 30-watt or 60-watt FM transmitters with improved phase-modulation circuit for better quality and stability. The handset and control units are designed for mounting on the vehicle dashboard for the convenience of the operator. A choice of antennas for either roof top or fender mounting is available.

Top tuning with the unit in place is possible plus an off-on switch to aid transmitter tests. Metering jacks have been placed in all circuits requiring tests to further simplify the service problem. If it is necessary to remove a unit for servicing, convenient strap handles have been provided for ease of lifting and handling.

The equipment designed for installation at the headquarters point for communication with mobile units has the same basic features as the mobile installations. The station equipment includes FM receivers styled for shelf-mounting or provided with brackets for mounting in a cabinet style rack.

A choice of a 30-, 60-, or 250-watt FM transmitters is available. The 30-watt transmitter is designed for either shelf or rack mounting, the 60-watt transmitter for shelf mounting only. The 250-watt transmitter is assembled in an attractive cabinet rack.

A desk-type handset, control unit, and a high gain antenna consisting of a vertical radiator with four horizontal "ground" rods, complete the station installation. The attractively styled control unit for station use contains a loudspeaker for optional use.

For further information, details, and pictures of the new models, styling, and electronic facts about radio communications for your city, a copy of the new communications booklet on one, two, and three way communications can be obtained from the Communications Equipment Section, Engineering Products Department, Radio Corporation of America, Camden, N. J.

High Intensity Runway Lights

High-intensity lighting which made possible the maintenance of operation flying in such fog-bound areas as the Aleutians, Newfoundland, and other low-visibility spots during the war, is now being installed at many major airports in the United States and abroad. Delays and cancellations of commercial flights caused by snow, fog, rain, dust, or smoke are thus being reduced.

Instrument approach ends where the actual landing operation begins. At that point the pilot must see the runway outlined by lights which establish a perspective for altitude, attitude of the plane, direction, distance, and speed. The landing lights must be of high intensity.

Pilots and engineers at Line Material Co., Milwaukee, Wis., collaborated before the war to develop a light that increased cockpit visibility to one mile. These lights are now being specified for commercial airports.

Bartow beam controlled unit which distributes light so that all units visible appear of same brightness and without glare to the pilot. With ground visibility of ½ mile, intensity approach and runway lighting enables the pilot to see to 1½ miles.

Reproduced by courtesy of Line Material Co., Milwaukee, Wis.

Orth Appointed by Johns-Manville

R. F. Orth has been appointed staff manager of the Transite Pipe Section, Johns-Manville Sales Corp., 22 E 40th St., New York, N. Y., according to an announcement by J. A. O'Brien, vice-president.

R. F. Orth

Mr. Orth joined Johns-Manville in 1924, after his graduation from Texas A & M College in 1923 and subsequent employment with the Western Electric Company in Chicago and New York. In 1940 Mr. Orth was named staff manager for Johns-Manvile Transite pipe sales in the west, and in 1941 moved to New York headquarters as manager of the Public Utility and Electrical Department.

Solvay Opens New Southwestern Branch

Solvay Sales Corp., 40 Rector St., New York, N. Y., has announced the establishment of a new office at 847 M & M Building, Houston, Texas, to cover the states of Texas, New Mexico, and Arizona.

Col. S. O. Taylor, a veteran of World Wars I and II, will be in charge. He recently returned to Solvay after three years as executive officer at Patterson Field, Dayton, Ohio, with the Army Air Corps. Before entering the Army Col. Taylor was employed at the corporation's St. Louis branch for 11 years.

International Harvester's Program of Education

International Harvester Co., Chicago, Ill., is establishing a program of education and training in cooperation with the University of Chicago, for the development and better instruction of its employees, according to an announcement by Fowler McCormick, president.

In order to put this program into effect without delay, a temporary instruction center devoted largely to training key sales personnel will be opened in Chicago in the near future. This will be supplemented by educational and training programs at the company branches in the United States, so that specialized education and training can be brought directly to the largest group of sales personnel. At the same time, present factory training programs will be expanded and intensified.

To assist the company in developing this large program, a cooperative agreement between the company and the University of Chicago has been concluded. This agreement calls for grants to the University totaling $125,000 to finance the first five years. Under the plan the University will cooperate in the formulation of objectives, development of instructional methods, and the measurement of achievement. An important phase of the work which will be carried on under the University's direction will consist of interviews, tests, and measurements of capacity-rating of participating employees.

A. C. Seyfarth will direct the educational program.

Officials for Vertical Turbine Pump Assn.

The National Association of Vertical Turbine Pump Manufacturers elected Arnold G. Brown, manager of the Pump Division of Fairbanks, Morse & Co., Chicago, Ill., as president at a recent meeting in Chicago. Joe Downs of A. D. Cook, Inc., Lawrenceburg, Ind., was elected vice-president.

An interesting paper on the subject of "Corrosion in Vertical Turbine Pumps" was presented by Dr. T. E. Larson, chemist, Illinois State Water Survey Board.

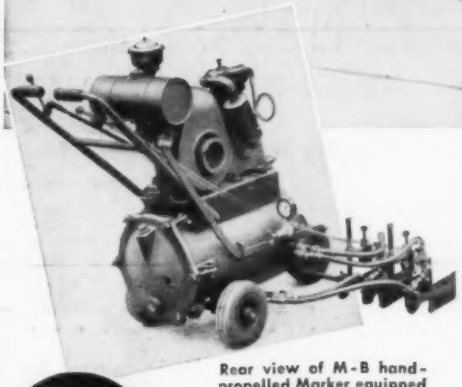
TRINITY STRAIN

Creeping Fescue

Now Commercially Available

Write today for further information

THE BELT SEED CO., Baltimore 2, Md.



Rear view of M-B hand-propelled Marker equipped for double line striping.

It's much easier to control city traffic if streets are properly striped. This handy M-B Marker simplifies the striping job. It handles ALL types of marking: Center-lines, parking areas, cross walks, safety zones, etc. Can also mark athletic fields, airports, tennis courts, playgrounds, etc., and is quickly convertible to an all-purpose paint sprayer. Write for descriptive bulletin.

MEILI-BLUMBERG CORP.
Box A-4 New Holstein, Wis.

MB MARKERS

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Consulting Engineers
Water, Sewage and Industrial Waste Problems, Airfields, Refuse Incinerators & Power Plants, Industrial Buildings. City Planning, Laboratory, Reports, Valuations.
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Water Supply and Purification, Sewerage and Sewage Treatment, Streets, Light & Power, Airports
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